RECONSTRUCTING POSSESSION MORPHOLOGY IN MAYAN LANGUAGES[1]

David F. Mora-Marín

University of North Carolina at Chapel Hill

1. Introduction. This paper studies the attributive possession strategies of the Mayan language family (ISO-639-3 myn) from both a typological and comparative-historical perspective. Attributive possession refers to a special relationship between two nouns—a possessee and a possessor—or between a possessive modifier and a head noun within a noun phrase (e.g., *the girl's dog*; *her dog*) and is contrasted here with predicative possession (e.g., *the girl has a dog*; *she has a dog*).[2] In the Mayan language family, attributive possession exhibits a variety of morphological and semantic traits, some of which combine to produce an alienable-inalienable possession split. These traits have been employed by Mayanist linguists, especially since the mid-1970s, to classify nouns

[1] I would like to thank Aaron Broadwell for the seminar on Mayan linguistics in the spring of 2000, which set off my interest in the comparison of possession constructions in Mayan languages. I am indebted to Terrence Kaufman for sharing with me, in 1999, his then-unpublished manuscript from 1989, "Mayan Comparative Studies," which has proven to be a source of ongoing inspiration and insight. Thanks to John Justeson for his comments on my review of possession morphology in my dissertation draft (Mora-Marín 2001), which served as the pilot for the conference papers that eventually led to this paper (Mora-Marín 2013, 2015). Thanks to Johanna Nichols for detailed comments on an early draft of this paper; to Carol-Rose Little for commentary on the Ch'ol data; to Kerry Hull for his help with Ch'orti' materials; to Victoria Bricker for sharing additional materials on Yucatec Maya that proved invaluable in my research; and to Ana Kondic for sharing her work on Huastec as well as her insights with me. I want to especially acknowledge the efforts of the peer reviewers, who alerted me to a plurality of small issues and also brought recent work on Huastec (Kondic 2012) and Ch'olan (Becquey 2014) to my attention. Finally, I am also indebted to David Beck, as well as the *IJAL* editorial staff, who have been extremely helpful throughout the process and who had to work through such a long and complicated manuscript. No one is to blame but me for any lingering errors or problems.

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[2] Attributive possession is also known in the literature as nominal, adnominal, or phrasal possession. It is not typically based on "possession" in the strict sense of "ownership" but instead on a variety of relationships between nouns (e.g.. kinship, anatomical, part-whole, ownership, attributes, locative, case relationships); possession involving a possessive modifier (e.g., my, your, his/her/its, etc.) is typically included in this type of possession. Predicative possession is also known as verbal or clausal possession. Heine (1997) surveys different types of attributive and predicative constructions and elaborates a model for their diachronic origins in a limited set of cognitive schemas.

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(Furbee-Losee 1976; Larsen 1976; Stewart 1978; England 1983; Dayley 1985); in such manner, some scholars have proposed up to ten classes of nouns (England 1988; Bricker, Po7ot Yah, and Dzul de Po7ot 1998).

Noun classifications based on possession are not new to linguistics: "possession classifications" of nouns are known, and have been known, from a variety of languages from around the world. At a minimum, a possession classification of nouns consists of two classes: a class of alienably possessed nouns and a class of inalienably possessed nouns. Nichols and Bickel (2013) have more recently proposed a typological definition of this trait: of the 243 languages sampled for information on possession strategies, 118 (48.6%) exhibit a possession classification system and 125 (51.4%) lack one. Of the former type, 94 exhibit 2 classes, 20 exhibit 3–5 classes, and 4 exhibit more than 5 classes. Interestingly, among those with no possession classification systems, one Mayan language, Popti' (ISO 639-3 jac), has been listed; and among those with 3–5 classes, another Mayan language, Tz'utujiil (ISO 639-3 tzj) is listed; below, I propose revisions to both of these sets of figures. In such possession classifications, nouns are distinguished by the formal traits they exhibit when possessed by other nouns. More precisely, the possession strategies are shown to be determined lexically, conditioned by properties of the possessed noun (the possessee) rather than the possessor (the possessum). In such languages, according to Nichols (1988, 1992), (1) the class of alienable nouns is open, while the class of inalienable nouns is closed; (2) morphosyntactically, alienable nouns are marked, and inalienable nouns are unmarked; and (3) lexicosemantically, the nouns that are treated as inalienable are characterized by an implicational hierarchy involving kinship terms > parts-of-the-body terms > important cultural items (e.g., some kinds of clothing, tools, and domestic animals). As will be shown in this paper, some of the noun classes defined by Mayanists on the basis of possession are based on characteristics of the possessee, others on the possessor. In other words, the "possession classifications" used by Mayanists are not entirely compatible with the definition used by Nichols and Bickel (2013), and vice versa.

Consequently, prior to the comparative and historical reconstruction exercise that is the main focus of this paper, the first objective consists of clarifying the nature of noun classifications based on possession strategies employed for Mayan languages, in order to assess their compatibility with cross-linguistic definitions and elaborate a classification more adequate for the goals of this paper. The second objective is to survey the suffixal possession morphology and then apply the comparative and internal reconstruction methods to propose a model for the historical development of such morphology from Proto-Mayan to each of the six major subgroups of the Mayan language family. This will involve revisiting major proposals by previous scholars, as well as exploring

additional possession morphology and possession strategies not previously addressed from a historical perspective.

With such objectives in mind, the paper is organized as follows. In **2**, I introduce a typology of attributive possession strategies for Mayan languages, in order to carry out systematic comparisons. In **3**, I introduce theoretical assumptions and review the previous reconstructions of possessive and abstractivizing morphology in the Mayan language family (Smith-Stark 1976; Houston, Robertson, and Stuart 2001; Kaufman 2015a); I also discuss the dataset compiled for this paper and the methods and steps used for comparison and reconstruction. In **4**, I present and analyze relevant evidence for the comparative reconstruction of each attributive possessive construction type covering all six basic subgroups of the family and all of the subdivisions within each basic subgroup. In **5**, I review the implications of the proposed historical scenario for the cross-linguistic typology of split possession constructions (Nichols 1988, 1992; Heine 1997) and possession classifications (Nichols and Bickel 2013); the recent debate regarding the reconstruction of Mayan vowel correspondences (Brown and Wichmann 2004; Wichmann and Brown 2011); and the broader issue of the areal distribution of certain types of possession morphology (and other possession-related phenomena) within the Mesoamerican linguistic area (Campbell, Kaufman, and Smith-Stark 1986). And in **6**, I offer some conclusions.

2. Mayan languages and possession typology. Mayan languages are typically head-marking and agglutinative. England (1991) has reconstructed the grammatical word order of Proto-Mayan as verb-object-subject, and overall the languages are largely consistent with the expected traits of a verb-object language (cf. Dryer 1992), including a possessed noun optionally followed by possessor complement (noun-genitive order); the possessed noun is obligatorily marked with a person agreement marker, as illustrated in (1), where *u-*, prefixed to the possessed noun 'hand/arm', indexes the person of the possessor ('tree') (López Ixcoy 1997:106).

K'ichee' (ISO 639-3 quc)
(1) **U**-q'ab' chee'
3A.SG-arm tree
'branch (lit. **its**-arm tree)'

Mayan languages exhibit morphological ergative-absolutive grammatical alignment: the *ergative* case is marked by means of a set of pronominal agreement morphemes, typically proclitics or prefixes, referred to as Set A, that index the subjects of transitive verbs; the *absolutive* case is marked by a different set of pronominal agreement morphemes, typically enclitics or suffixes

(to aspect markers in a verbal predicate or to nouns or adjectives in a nonverbal predicate), referred to as Set B, that index the subjects of intransitive verbs and objects of transitive verbs. For examples of the uses of Sets A and B agreement markers in transitive and intransitive verbal expressions, see Zavala (2017:227) for Akatek (ISO 639-3 knj) and Can Pixabaj (2017:466) for K'ichee'. Set A markers are also used, obligatorily, to index the possessor on the possessed noun within the noun phrase, in what is called here attributive possession, following Heine (1997). Thus, Set A markers are applied to the head of the noun phrase, as already shown in (1). Their obligatory presence allows for the optional omission of the complement phrase expressing the possessor. Set A markers are not the focus of the present paper.[3] Instead, this paper focuses on the reconstruction of the suffixes and internal modifications of the possessed nouns, the types of noun phrase constructions that can be utilized to code different types of possession, and last, whether the possession contruction is conditioned by the possessee or the possessor. This paper does not explore the topic of predicative possession.

One of the challenges in reconstructing Mayan attributive possessive constructions and morphology is the diversity of nomenclatures, typologies, and approaches. Several of the earliest typologies (e.g., Furbee-Losee 1976; Larsen 1976; Stewart 1978; England 1983; Dayley 1985), influenced by the guidelines for the Proyecto Lingüístico Francisco Marroquín put forth by Terrence Kaufman and William Norman during the early 1970s, emphasized formal aspects of concrete and abstract noun inflection and noun phrase construction rather than semantic aspects of either the possessor or the possessee; some of these typologies (e.g., Stewart 1978) also incorporated possession of compound nouns. Later typologies began to incorporate semantic factors, primarily of the possessee, but also the influence of the possessor, specifically in phrases where the possessor is inanimate. England's (1983, 1988, 1992) typologies of possession noun classification are the closest to a standard, particularly in their application in numerous grammars of Guatemalan Mayan languages published by native speaker linguists since the early 1990s. More recent typologies differ, sometimes drastically, from early ones; some consider both inflection and semantics (Bricker, Po7ot Yah, and Dzul de Po7ot 1998; Lehmann 2003; Kockelman 2007; England 2017; Polian 2017a, 2017b), while others focus mostly on derivation and phrasal syntax (Hofling 2017). Online Appendix 1 provides

[3] The Set A markers for each language subgroup (or their representative languages) are provided in Online Appendix 2. The labels Set A and Set B were initially promoted by Terrence Kaufman. Several authors have dealt with their comparative reconstruction, including Bricker (1977), Robertson (1977, 1982, 1985), Osborne (1989), and Kaufman (2015a, 2015b). The author favors the reconstructions by Kaufman, but this issue has little to no direct bearing on the present paper.

a more detailed review of trends in the classifications of nouns on the basis of possession.

What I propose is a synthesis: I combine a focus on the semantics of the possessee by Nichols (1988, 1992) and Nichols and Bickel (2013) with a focus on the semantics of the possessor highlighted by some of the Mayanist classiifications. The goal is not a classification of nouns but a classification of possession strategies. The classification proposed here is seen in table 1. It considers formal (inflection, derivation) and semantic (possessor, possessee) factors. Under the "Morphological templates" column, table 1 shows the template for both the possessed and unpossessed forms of the noun: Set.A-CVC refers to a possessed form of the noun (since Set A person markers are obligatory to indicate possession and since most nouns are typically of CVC shape), while CVC refers to an unpossessed form of the noun; the presence of a suffix is indicated by the general shape of such a suffix, as in CVC-VVC/CVC, where -VVC could illustrate a suffix such as *-aaj* and -CVC could illustrate a suffix such as *-b'il*; and the use of numerical subindices indicates distinct noun roots in the possessed and unpossessed expressions (Set.A-CVC_1 vs. CVC_2).

Table 2 illustrates each of the possession strategies in table 1 using several of the Mayan languages.[4] Online Appendix 1 reviews some of these strategies in some detail, while Online Appendix 2 provides the dataset compiled from 29 of the 31 Mayan languages. Both the possessed and unpossessed forms must be provided, because in at least two classes, P2 and P8 Possession, the noun root may experience internal modification upon possession (P2) or replacement with a different, suppletive root (P8).

Using the new classification, as well as the dataset in Online Appendix 2, it can be argued that a typical Mayan language exhibits approximately five to seven possession strategies based on the possessee and one to three based on the possessor, for a total of six to ten possession strategies per language. Given the data collected for this paper and the typology just presented, it is necessary to revise what Nichols and Bickel (2013) have said about two of the Mayan languages. With regard to Popti' (referred to as Jakaltek by Nichols and Bickel), which they list as having no possession classification, the data I have collected shows that it attests to six possession strategies conditioned by the semantics of the possessee (P1, P3, P5, P7, P8, P9) and two by the semantics of the possessor (P6, P10). Similarly, for Tz'utujiil, listed by those authors as consisting of three to five classes, my dataset shows that it is characterized

[4] Another type of possession that is only rarely described in the literature pertains to certain roots with initial glottal stops. This type of possession, discussed briefly in Kaufman (2015b), has been documented systematically in Mora-Marín (n.d.), to be published at a later date. There is evidence for the reconstructibility of at least a few such roots to Proto-Mayan.

TABLE 1
TYPOLOGY OF POSSESSION STRATEGIES USED IN THIS PAPER

Type	Morphological templates	Descriptive labels	Semantics	Possessee	Possessor
P1a	Set.A-CVC, CVC	Simple ownership, alienable	Cultural items (cultigens, tools, clothing)	X	
P1b	Set.A-CVC, CVC	(Semi-)inalienable possession (typically possessed)	Body parts, kin terms		
P2	Set.A-CVVC, CVC	Vowel-lengthening alienable possession	Cultural items (food, cultigens, domesticated animals)	X	
P3	Set.A-CVC, CVC-**VVC/CVC**	Suffix-removing inalienable possession	Kin terms, body parts, clothing	X	
P4	Set.A-CVC-**V(V)l**, CVC	"Dative" abstractive possession	Objects produced for or closely associated with an individual or entity; benefactive, malefactive, recipient, goal roles		X
P5	Set.A-CVC-**VVl**, CVC	Systemic or extension abstractive possession	Parts of an organism of system-wide distribution and/or involuntary control; includes noncorporeal substances applied to the body (dirt, water, paint)	X	
P6	Set.A-CVC-**V(V)l**, CVC	Inanimate, part-whole, or dative abstractive possession	Parts of objects (possessee is not typical meronym), inanimate or collective possessors only		X
P7	Set.A-CVC_1, CVC_2	Suppletive roots/stems	House/home, food, animals, clothes, parts of the body	X	
P8	Set.A-CVC_1, Set.A-CVC_2	Diphrastic kenning construction	Parents, grandparents, parts of the body (metonyms; some are metaphorical too)	X	
P9	CVC	Never possessed (or possessed indirectly; not a member of suppletive pairs)	Natural phenomena (sun, star, cloud)	X	
P10	Set.A-CVC(-**VVl**)	Always possessed (not a member of suppletive pairs), abstractive possession	Relational nouns (locative, temporal, case), abstract nouns, ordinal numerals		X

TABLE 2
ILLUSTRATIONS OF EACH POSSESSION STRATEGY

Type	Language	Expression	Interlinear Gloss	Translation	Source
P1	Uspantek	in-b'aatz'	1A.SG-thread	My thread	Can Pixabaj (2007:71)
P2	Yucatec	k'omoh	Stink/stench	stink, stench	Bricker, Po7ot Yah, and Dzul de Po7ot (1998:360–61)
		in+k'òomoh	1A.SG+st ink/st ench	my stink, stench	
P3	Tektiteko	ichmil-**b'aj**	Husband-P3POSS	husband	Baltazar Gutiérrez (2007:38, 39)
		ky-ichmil	3A.PL-husband	their husbands	
P4	Tzotzil	j-machita	1A.SG-machete	my machete	Haviland (1980)
		j-machita-**il**	1A.SG-machete-P4POSS	the machete they are going to kill me with (malefactive)	
P5	Tz'utujiil	nuu-muuj	1A.SG-shade	my shade (from a tree)	Dayley (1985:147, 150)
		n-muuj-**al**	1A.SG-shadow-P5POSS	my shadow	
P6	Potosino Huastec	ʔin wits-**iil** ʔan teʔ	3A.SG+flower- P6POSS DET tree	the tree's flower	Edmonson (1988:350, 365–66)
P7	Awakateko	xno'ql	$Coat_1$	coat	Mendoza Solís (2007:35)
		n-txo'	1A.SG -$coat_2$	my coat	
P8	Kaqchikel	qa-naan qa-taat	1A.PL-mother 1A.PL-father	our parents	Patal Majzul, García Matzar, Espantzay Serech (2000:110)
P9	K'ichee'	☹qa-jab'	1☹A.PL-rain	☹our rain	López Ixcoy (1997:103)
		qa-naan jab'	1A.PL-mother rain	our mother rain	
P10	Poqom ordinals	Ru-kab'	3A.SG-two	second	Malchic Nicolás, Mó Isém, and Tul Rax (2000:118)
		r-oox	3A.SG-three	third	
	Mocho' relational nouns	Set A-iitooj	Set A-partner	with X	Palosaari 2011:152, 162, Table 7.2
		Set A-baaj	Set A-self	X-self (reflexive)	
	Tektiteko abstract nouns	t-q'eq-al	3A.SG-black-ABSTR	its blackness	Baltazar Gutierrez 2007:40
		s-tzaq-al	3A.SG-white-ABSTR	its whiteness	

☹ stands for 'not attested'. Strategy-defining morphological devices are shown in bold.

by seven classes based on the possessee (P1, P2, P3, P5, P7, P8, P9) and two based on the possessor (P6, P10).

3. Historical linguistic framework and procedure. Most Mayanists (cf. Campbell 2017:44, table 3.1) have adopted Kaufman's (1976, 2015a, 2017) model for the genealogical classification of Mayan languages, seen in Figure 1, as I do in this paper.[5] It assumes that Huastecan was the first subgroup to split from Proto-Mayan, leaving Late Proto-Mayan (or Southern Mayan or Core Mayan) behind in the homeland, followed sometime later by Yucatecan, leaving Central Mayan behind in the homeland, and further posits that the remaining four subgroups were the result of three basic differentiation events: Central Mayan split into Eastern Mayan and Western Mayan; Eastern Mayan split into Greater K'iche'an and Greater Mamean; and Western Mayan split into Greater Q'anjob'alan and Greater Tzeltalan. Kaufman and Justeson (2009) suggest that the six major subgroups of the Mayan language family (Huastecan, Yucatecan, Greater K'iche'an, Greater Mamean, Greater Q'anjob'alan, and Greater Tzeltalan) were individual languages between 1200 and 600 BCE.[6] After this time, each one began to differentiate further, resulting in the roughly 31 Mayan languages known today.

Kaufman (1976) and Justeson et al. (1985) have emphasized that significant contact has taken place between several groups of Mayan languages. Justeson et al. (1985:9, 11) propose two major spheres of interaction: a Greater Lowland Mayan sphere, involving Greater Tzeltalan (Ch'olan, Tzeltalan) and Yucatecan, and a Lowland Mayan sphere, involving Ch'olan and Yucatecan. Kaufman (2015a:413, 1025–27; 2017:69) defines two additional spheres of interaction: the Chiapas sphere involving primarily Tojolab'al (ISO 639-3 toj), Tzotzil (ISO 639-3 tzo), and Ch'ol (ISO 639-3 ctu); and the Huehuetenango sphere (Q'anjob'alan Proper and Mamean Proper). The Lowland Mayan sphere also involved other languages: Justeson et al. (1985:9–10) and more recently Wichmann and Hull (2009) have pointed out the impact of Ch'olan

[5] An alternative model, Robertson's (1992, 1998), favors a close relationship between Huastecan and Greater Tzeltalan on the basis of presumed shared sound changes. Kaufman and Justeson (2008), nevertheless, have shown that these Huastecan sound changes are not identical in context and, just as important, that on geographic and chronological grounds, they must have occurred independently—some of these changes actually occurred very recently in Huastecan but probably over two millennia ago in Greater Tzeltalan.

[6] For the purposes of referring to these reconstructed languages in the tables, I use the following abbreviations: pM for Proto-Mayan, LpM for Late Proto-Mayan, CM for Central Mayan, Hua for Huastecan, PH for Proto-Huastecan, Yu for Yucatecan, EM for Eastern Mayan, WM for Western Mayan, GM for Greater Mamean, GK' for Greater K'iche'an, GQ' for Greater Q'anjob'alan, GTz for Greater Tzeltalan, and CLM for Classic Mayan. Also, in the tables, I may use the language abbreviations employed by Kaufman with Justeson (2003:38–43).

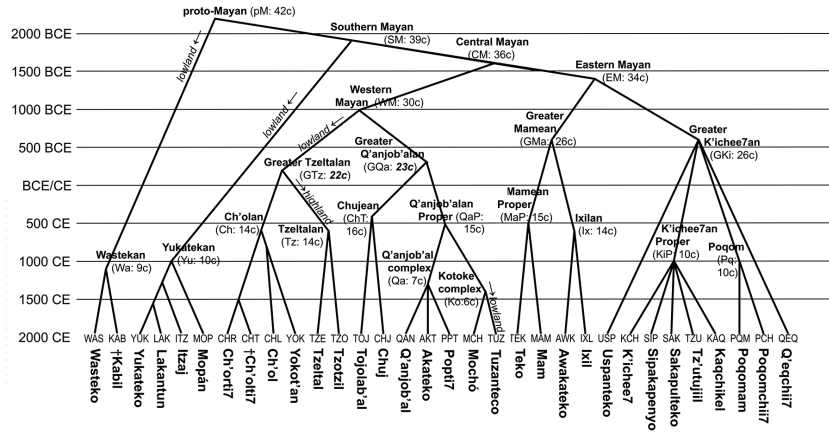

FIG. 1.—Model for the phylogenetic classification of the Mayan languages by Kaufman (2017:66–67, fig. 4.2A).

and Yucatecan on Q'eqchi' (ISO 639-3 kek). Subsequent to the differentiation of Proto-Ch'olan into its Eastern and Western branches, the Western Ch'olan languages, including Ch'ol and Chontal/Yokot'an (ISO 639-3 chf), engaged in contact with the Tzeltalan languages, including Tzeltal (ISO 639-3 tzh) and Tzotzil (ISO 639-3 tzo), resulting in lexical and morphological diffusion (Kaufman and Norman 1984:83; Mora-Marín 2009a:110, 123). These contact spheres are relevant to the assessment of several reconstructions.

This paper applies the comparative method to the reconstruction of morphological inflectional and derivational morphemes, first from the bottom up, beginning with the individual languages within each of the six major subgroups, proposing reconstructions for each of the subgroups, and proceeding upward with the larger groupings in Kaufman's model, all the way up to Proto-Mayan. Then reconstruction is carried out from the top down (forward reconstruction), weighing the evidence from distinct subgroups on the basis of their position within the overall family tree.

This study also takes into account the regular sound correspondences for the Mayan languages (cf. Campbell 1984:6, table 2) but recognizes that grammatical morphemes sometimes undergo change at a different rate than lexical morphemes and also that sound changes may be morphologically conditioned. As discussed with specific examples throughout **4**, contrastive vowel length is variously preserved across the Mayan language family and, in some cases, even across grammatical categories within the same language or subgroup of languages, a fact that must be considered for the reconstruction of vowels

present in possessive suffixes. A very common set of phenomena across the Mayan language family, discussed in more detail in **4**, pertains to the vowel syncope in a -VC suffix when another suffix is added after it, so that a sequence of suffixes -VC-VC is often realized as -C-VC; when the first suffix is unproductive, and the second suffix is a more productive morpheme with the same function as the first, amalgamation and reanalysis of the sequence as -CVC suffix is a common result. Other processes will also be discussed with specific examples of grammatical suffixes.

Regarding Mayan hieroglyphic inscriptions, referred to by Kaufman with Justeson (2003) as Epigraphic Mayan (ISO 639-3 emy), I refer the reader to Mora-Marín (2009b:123–25) for the basic transcription, transliteration, and translation conventions of Mayan signs and texts. I discuss the evidence from Classic Mayan (CE 200–900) texts whenever it is especially instructive, but there are challenges in their use. One such challenge is orthographical: there remain disagreements about the orthographic conventions and their interface with phonological forms (e.g., Bricker 1989; Justeson 1989; Houston, Stuart, and Robertson 1998, 2004; Houston, Robertson, and Stuart 2001; Lacadena and Wichmann 2004; Mora-Marín 2005, 2010; Gronemeyer 2011). Below, I address whenever different approaches to orthographic conventions can lead to different analysis on a case-by-case basis. Another challenge pertains to linguistic varieties: there is evidence that Classic texts represent multiple varieties not only of the same subgroup, Ch'olan, but also of the Yucatecan subgroup, while at the same time widely distributed "conservative" or "prestige" spellings suggestive of an ancestral Ch'olan variety (e.g., Justeson and Fox 1989; Houston, Robertson, and Stuart 2000; Lacadena and Wichmann 2000, 2002; Mora-Marín 2009b). Thus, extreme care must be exercised in their use, and it cannot be assumed that a single spoken variety was represented, much less one that can be unambiguously identified with a single variety attested today. A more cautious approach that attempts to correlate some traits from Classic texts with traits from Ch'olan and Yucatecan languages, depending on the regional distribution of the particular text, is followed here.

Several descriptions and discussions of possession in Mayan inscriptions are available, including Bricker (1986), Macri (1997), Mora-Marín (2001), Houston, Robertson, and Stuart (2001), Zender (2004), Meléndez Guadarram (2007), Lacadena and Davletshin (2013), and Law and Stuart (2017); Meléndez Guadarram (2007) constitutes by far the most extensive and theoretically grounded treatment of the topic. Here I only discuss a few important details regarding some of the subtypes of possession in Classic Mayan texts, specifically those that constitute novel proposals or a reanalysis and reinterpretation of previously identified possession strategies. The complexity of the orthographic issues and sociolinguitic context of Classic Mayan texts demand a much more detailed and focused study than is possible here.

3.4. Previous work.

3.4.1. Diachrony of attributive possession.[7] Smith-Stark (1976:49) offered two proposals for the reconstruction of Mayan predicative possession, in (1), and attributive possession, in (2):

(1) In order to predicate possession, [Proto-Mayan] used an existential verb with a possessed noun. That is, 'I have a house' would literally be something like 'exists my house'.
(2) The possession of one noun (N1) by another (N2) in [Proto-Mayan] was expressed by a construction of the form x-N1 N2 where x is a possessive pronoun cross-referencing N2 in person (and optionally, number).

Neither of these proposals is in question here. In addition, Smith-Stark (1976:49) also offered the following proposal regarding one of the types of atttributive possession:

(3) [Proto-Mayan] had a set of nouns that, when possessed, underwent internal modification of the stem.

This pertains to vowel lengthening of the possessed noun, but in some languages there is a change in vowel quality or pitch instead of vowel lengthening.

[7] This paper utilizes a practical orthography for the Mayan languages of Mexico and Guatemala: <b'> for [ɓ], <ch(')> for [tʃ(')], <x> for [ʃ], <j> for [x], (Mexican) <ts(')> (instead of Guatemalan <tz(')>) for [t͡s(')], and <VV> to indicate long vowels. I use <ʔ>, <'>, or <7> for glottal stop, depending on the sources cited. The paper also uses the epigraphic transcription conventions by Fox and Justeson (1984), the most basic of which, for the present purposes, include the use of bold letters for known Mayan values, lowercase letters for syllabographic values (e.g., **chi**), and uppercase letters for logographic values (e.g., **CH'AM** for **ch'äm* 'to hold, receive'). Whenever a complex utterance is illustrated and morpheme glossing deployed, the following abbreviation system is used: <-> is used for affixes, <+> for clitics, 1/2/3 are used for grammatical person, A = absolutive agreement marker, ABSTR = abstractivizing suffix, ABSTR.N = abstract noun, C = consonant, CL = classifier, CMP = completive status suffix, DEF = definite determiner, DET = determiner, DIST = distal deictic, E = ergative/possessive agreement marker, ENCL = enclitic, EXIST = existential particle, FEM = female proclitic/prefix classifier, GEN = generic, INCH = inchoative, INC.PAS = incompletive passive, INSTR = instrumentalizing suffix, IRR = irrealis, IVZR = intransitivizer, MALE = male proclitic/prefix classifier, MP = mediopassivizer, NEG = negative particle, NUM = numeral, PL = plural, POS = Positional, POSS = possessive suffix, PREP = preposition, PROX = proximal deictic, REL = relational suffix, RN = relational noun, SG = singular, TS = transitive indicative status suffix, UNPOSS = unpossession suffix, V = vowel. Lastly, possessive suffixes based on particular possession types are preceded by the abbreviation for the respective possession type, e.g., P4.POSS for 'possessive suffix for Possession type 4'. I prepose <*> for proposed reconstructions (e.g., *Set.A-7atyooty 'home', *ŋaah 'house'), and ⊗ for 'unattested' forms or constructions (instead of 'ungrammatical'). I also use subindices <1> and <2> in the context of P7 Possession to mark the different roots involved in a suppletive relationship and, in the context of P8 Possession, to mark the roots or phrases that make up the members of a diphrastic possessive construction.

More recently, Kaufman (2015a:700) has offered the following reconstructions of "part possession" and "absolute" suffixes, respectively:[8]

(4) Most Mayan languages make use of a reflex of Proto-Mayan *-*eel* ~ -*aal* on some possessed nouns where the kind of possession is part:whole with a noun that is not necessarily possessed.
(5) Cotoque [Kotoke] and Pocom [Poqom] show reflexes of a Proto-Mayan suffix *-*itz* ~ -*atz* on the absolute (non-possessed) form of many nouns that normally occur possessed.

Houston, Robertson, and Stuart (2001:43, 45), in a paper addressing the spelling of morphological suffixes in Classic Mayan writing, have also addressed the reconstruction of four Common Mayan (i.e., Proto-Mayan) "absolute" nominal suffixes:

(6) First, the form *-*Vj* goes back to Common Mayan, since it appears in Q'anjob'alan, Mamean, K'iche'an—and remarkably in the [Classic Mayan] script. In this regard, the script is highly conservative.
(7) Second, the referential categories for this class of nouns are mainly (but not exclusively) clothing, body parts, and kinship terms. There is a tendency for -*Vj* to suffix words referring to clothing and body parts but for there to be distinct terms for kinship.
(8) Third, the words for kinship tend to attract two morphemes, as, for example, Q'eqchi' -*b'-Vj*, Poqomchi' -*b'-e:s*, Ch'orti' -*b'-il*, and Yukatek -*tz-il*. It is likely that -*b'-* is reconstructible to Common Mayan.
(9) Fourth, it is also possible that the -*atz* of K'iche'an and the *tz* of Yukatekan go back to Common Mayan as alternative kinship markers.
(10) Finally, the -*Vl* of the lowland languages must have been an innovation, since it replaces historic *-*aj* [*-*Vj*].

I address each of these points in **4**, as well as additional grammatical suffixes and possession constructions not considered previously in the historical literature.

3.4.2. "Abnormal" possession. Regarding the type of possession addressed by Kaufman in (4), Dayley (1985:150), writing about Tz'utujiil, has suggested that certain types of possession that he referred to as "abnormal" possession appear to be morphologically and semantically related to the formation of abstract nouns, examples of which follow: *r-chee7-aal* (3A.SG-tree/wood-ABSTR) 'its treeness, woodness' derived from the noun root *chee7* 'tree, w

[8] When I began my research I utilized a version of Kaufman (2015a) dated to 1989. I have since revised my citations to reflect the most recent version of the manuscript that is now published online.

ood', and *r-winaq-iil* (3A.SG-person/people-ABSTR) 'his/her humanness, naturalness' from the noun root *winaq* 'person, people'. On this relationship, Dayley (1985:151) remarked:

(11) It is interesting to note that the suffix *-VVl* forming abstract nouns is identical with the suffix used in abnormal possession. . . . Thus, at least formally, there is a relationship between abstract nouns and abnormally possessed nouns. The full nature of this relationship is unclear, but certainly warrants further study.

Dayley (1985:145) explained that five suffixes are involved in this type of possession: *-aal ~ -eel ~ -iil ~ -ool ~ -uul*. He also pointed out that these allomorphs are "lexically determined." Some examples of "normal" versus "abnormal" possession follow:

(12) Tz'utujil (Dayley 1985:146)
   a. *chee7* 'wood, tree, stick', *nuu-chee7* 'my wood, etc.' (human possessor), *r-chee7-aal ja kinaq'* 'the bean's stick' (i.e., "the stick used to hold beans up when they are growing")
   b. *chikop* 'animal', *n-chiikoop* 'my animal' or *r-chiikoop* 'his/her animal', *r-chikop-il chee7* 'wood's animal = termite' and *r-chikop-il ixiim* 'corn's animal = weevil'
   c. *b'aaq* 'bone', *nuu-b'aaq* 'my bone' ("to make an awl with"), *n-b'aaq-iil* 'my bone (of my body)'
   d. *kik'* 'blood', *nuu-kiik'* 'my blood' ("to make blood sausages with"), *n-kik'-eel* 'my blood (of my body)'

This type of possession is of interest for typological comparison. Based on Dayley's description, authors such as Nichols (1988:575) and Heine (1997:180) have remarked on the fact that this "abnormal" possession type seemingly contradicts an otherwise consistent cross-linguistic generalization: if analyzed as a case of inalienable possession, which is characteristically unmarked in languages exhibiting a possession split, it would constitute a case of marked inalienable possession. As a result, just as Dayley himself did, Nichols and Heine have entertained the possibility that this type of possession could in fact constitute a case of derivation rather than inflection; if so, it would cease to be a typological rarity. In **4.5** I test this issue by comparing the possessive constructions of relevance to the abstractivizing suffixes present in each language and language subgroup. More recent discussions of noun morphology in Mayan languages (England 2017; Hofling 2017; Polian 2017a, 2017b) are also brought to bear.

4. Survey and reconstruction of attributive possessive morphology. This section accomplishes two tasks. It summarizes the data of relevance for each attributive possessive construction type, and it presents a historical

scenario based on such evidence. The datasets for the attributive possessive constructions are presented in full in Online Appendix 2.

4.1. Possession type 1 (P1): *Set A-CVC-Ø, *CVC-Ø; simple ownership and semi-inalienable possession. This construction is characterized by the following formal traits (see example in table 2): nouns remain unchanged (no modification of the vowel), and the nouns in question do not take a suffix when unpossessed. Online Appendix 2.1 provides the relevant data for each of the Mayan subgroups. There exist two subtypes: P1a can be described as simple, alienable ownership possession of nouns (e.g., tools, clothing, cultigens); P1b can be described as semi-inalienable possession of nouns that typically (but not obligatorily) occur possessed, for example, Yucatec (ISO 639-3 yua) *le koh+o?* (DET tooth+DIST) 'that tooth' vs. *in+koh* (1sE+tooth) 'my tooth' (Lehmann 2003:49), including body part terms that are frequently used with a meronymic (part-of-the-whole) function, for example, Itzaj *u-pach k'ab* (3sE-back hand/arm) 'back of hand' (Hofling 2000:117, 136).

In Potosino Huastec (a variety of ISO 639-3 hus) the vast majority of nouns exhibiting P1 Possession take a suffix, remain unchanged internally, and do not belong to the class of nouns that require a suffix when unpossessed. According to Edmonson (1988:366), Potosino Huastec has only 2 nouns, out of a total of 750 for which she had both possessed and unpossessed forms, that were exclusively possesed without a *-Vl* suffix: *kaaw* 'word' and *k'ih* 'permission'. The rest, Edmonson (1988:366) claims, are marked for simple ownership suffix *-il ~ -al ~ -hil*, whose distribution is reviewed in more detail in Appendix 2.1. Kondić (2012), in contrast, defines a large class of nouns in San Francisco Huastec, another variety of ISO 639-3 hus that do not undergo suffixation or vowel-lengthening upon possession, and her examples are representative of the two subtypes defined above, P1a (ownership) and P1b (inalienable). I consider the situation of Potosino Huastec to be innovative: it may have innovated the use of suffixes for P1 possession by generalizing the use of the suffixes utilized in P2 possession, discussed below. Proto-Huastecan likely was more in

TABLE 3
RECONSTRUCTION OF P1 POSSESSION ACROSS THE MAYAN LANGUAGE FAMILY

Subgroup	Suffixes	Subfamilies	LpM	pM
Huastecan	-Ø, -il ~ -hil, -al	*-Ø		*-Ø
Yucatecan	-Ø	*-Ø	*-Ø	
Greater Mamean	-Ø	EM: *-Ø		
Greater K'iche'an	-Ø			
Greater Q'anjob'alan	-Ø	WM: *-Ø		
Greater Tzeltalan	-Ø			

line with the rest of Mayan, a suggestion supported by San Francisco Huastec. Table 3 summarizes the data and reconstructions. I propose that Proto-Mayan exhibited P1 possession characterized by no suffixation and no internal modification and was applicable to both alienably (P1a) and (semi-)inalienably (P1b) possessed nouns; the (semi-)inalienably possessed nouns in this category did not require a suffix when unpossessed but were instead typically possessed in most contexts of use.

4.2. Possession type 2: Vowel-lengthening possession, *Set A-CV-VC(-Vl), *CVC-Ø. This type of possession can be characterized as follows (see example in table 2 and Online Appendix 2.2 for datasets for all subgroups): the nouns exhibit internal modification (vowel-lengthening); nouns that exhibit this type of possession typically exhibit no other type of possession (there are few exceptions); they may be mono- or disyllabic in shape; with the exception of some nouns in some varieties of Huastecan and in Mocho' (ISO 639-3 mhc), in most languages these nouns do not take *-VVl* suffixes; and typically they include semantic domains of food, cultigens, material culture, and some animals, all of which may be considered alienable. A very few languages may exhibit one or two kin terms that undergo vowel lengthening upon possession, as in the case of Poqom (Poqomam ISO 639-3 poc, Poqomchi' ISO 639-3 poh), but these are of the kind that also take a suffix when unpossessed, and thus they constitute examples of inalienable possession and overlap with P3 possession. Such examples are not the norm, however: most of the languages seem to allow only alienable nouns to exhibit P2 possession. Examples of body part terms are rare.

Smith-Stark's (1976:49) reconstruction of possession involving internal modification of the root in Proto-Mayan, (3) above, is amply supported.[9] Although in some languages (e.g., Kaqchikel) the modification in question occasionally involves a change in the vowel quality and in others a contrasting change in the pitch (e.g., Yucatec), all of the types of internal modification can be traced back to vowel-length contrasts in each of the Mayan subgroups attesting to it and as far back as Proto-Mayan.[10]

Kaufman with Justeson (2003:1045) reconstructs one case of this process in Proto-Mayan: *pM *xaq ~ *ERG-xaaq* for 'leaf'. Nevertheless, the data they provide documents the vowel-lengthening process in Greater Q'anjob'alan, Greater Mamean, and Greater K'iche'an; the etymon is attested in Huastecan,

[9] Smith-Stark (1976) expressed caution in his formulation, given that it was based on relatively limited data. It is likely, too, given his vague label of "internal modification," that he may have suspected that internal modification would not consist of vowel lengthening in all the languages that attested to this process.

[10] Like Kaqchikel, Uspantek exhibits alternations in vowel quality related to P2 possession: *ek'* 'pollo (chicken)' and *w-aak'* 'mi pollo (my chicken)' (Can Pixabaj 2007:72).

TABLE 4
RECONSTRUCTION OF P2 POSSESSION WITH VOWEL-LENGTHENING

Subgroup	Suffixes	VV and suffixes	Subfamilies	LpM	pM
Huastecan	-Ø, -il/-al	CVVC-Ø, CVCVVC-Ø, CVCVVC-il/-al	Hua: *CVVC-Ø, *CVCVVC-Ø	—	
Yucatecan	-Ø	CVVC-Ø, CVVCVC-Ø	Yu: *CVVC-Ø, *CVVCVC-Ø	CM: *CVVC-Ø,	
Greater Mamean	-Ø	CVVC-Ø, CVVCVC-Ø CVCVVC-Ø	EM: *CVVC-Ø, *CVVCVC-Ø *CVCVVC-Ø	*CVVCVC-Ø, *CVCVVC-Ø	*CVVC-Ø, *CVCVVC-Ø
Greater K'iche'an	-Ø	CVVC-Ø, CVCVVC-Ø, CVVCVVC-Ø			(or *CVVCVVC-Ø)
Greater Q'anjob'alan	-Ø	CVVC-Ø	WM: *CVVC-Ø		
Greater Tzeltalan	-Ø	CVVC-Ø			

too, although not obviously with vowel-lengthening upon possession. The issue of vowel-lengthening and its importance for the diachronic study of Mayan vocalic correspondences is discussed further in **5.1**, where I suggest the root for 'clay cup' may have exhibited this process in Late Proto-Mayan and possibly earlier.

Table 4 summarizes the data and reconstructions.

There are several possibilities for vowel lengthening depending on the length of the root involved and, in the case of disyllabic roots, whether only one of the vowels is lengthened—and if so which one. Only Greater K'iche'an provides clear evidence for two vowels lengthening: Tz'utujiil illustrates this with *kinaq'* 'bean(s)' versus *n-kiinaaq'* 'my bean(s)' and *chikop* 'animal' versus *n-chiikoop* 'my animal' (Dayley 1985:143–50). It is possible to reconstruct three types to Late Proto-Mayan: *Set A-CVVC ~ *CVC, *Set A-CVVCVC ~ *CVCVC, and *Set A-CVCVVC ~ *CVCVC. It is possbile to reconstruct two types to Proto-Mayan: *Set A-CVVC ~ *CVC and *Set A-CVCVVC ~ *CVCVC. Alternatively, one could argue for Proto-Mayan *Set A-CVVC and *Set A-CVVCVVC and suggest that different subgroups simplified *Set A-CVVCVVC to either *Set A-CVCVVC or *Set A-CVVCVC or both *Set A-CVCVVC and *Set A-CVVCVC, possibly as a result of changes in lexical stress placement.[11] I leave this as a topic for further study.

4.3. Possession type 3 (P3): Suffix-removing inalienable possession, *Set A-CVC, *CVC-VVC. This type of possession is characterized by the following traits (see example in table 2): the nouns in question occur possessed in most contexts; when possessed, they take no suffix; when unpossessed, they take a suffix, referred to in the literature as an "absolute" or "absolutive" or "unpossession" or "unknown possessor" suffix; the semantic domains include primarily kinship terms and parts of the body but also occasionally items of clothing. Consequently, this is a type of prototypical inalienable possession, both semantically (kinship, body parts, clothing) and morphologically (with

[11] Kaufman (2015a:700) states that this trait "seems to be reconstructible to Proto-Mayan" but adds that "the Yucatecan reflexes are problematic, and Huastec has some lengthening under possession which is probably not of the same origin, since Proto-Mayan vowel length is apparently not preserved in Huastec, except in limited environments." Norcliffe (2003:92–95) proposes that Proto-Huastecan (PH) preserved contrastive vowel length from Proto-Mayan (pM) except in specific environments: pM *VV > PH *V/__ŋ, pM *VV > PH *V/__ ʔ# (iff ʔ < pM *ʔ), pM *V > PH *VV/__ʔC, pM *VV > PH *V/__{*x, *h}. Some cases of differences in vowel length between Proto-Mayan and Proto-Huastecan, Norcliffe argues, are probably the result of more idiosyncratic processes, such as homophony avoidance, semantic derivation, and analogical reanalysis of a base after ablaut. The latter factor probably refers to vowel lengthening upon possession, but Norcliffe does not make this explicit. It is worth noting that in Potosino Huastec abstract nouns may be derived through vowel lengthening of the adjective root or through vowel lengthening of the adjective root and the addition of the suffix *-tal* (Edmonson 1988:311–13).

the possessed form receiving no special suffix or modification and the unpossessed form receiving special marking), given Nichols's (1988, 1992) definition. Online Appendix 2.3 provides relevant data from across the Mayan family. In a few languages, some nouns that belong to this type of possession also undergo internal modification (P2 possession).

Although many scholars refer to the suffix of this construction as marking the "absolute" or "absolutive" form of the noun (e.g., Lehmann 2003; Kaufman 2015a), in several of the languages the suffixes in question appear to bear associations and functions that are more nuanced: generic, collective, vocative, reverential, diminutive, plural, and unknown possessor.

It is also clear that many of the languages have undergone cycles of reanalysis that result from the decay in productivity of a suffix, followed by the application of another suffix, sometimes replacing the older suffix but other times becoming amalgamated to the older suffix, resulting in sequence of a frozen suffix followed by a productive suffix. The following examples illustrate this process:

(13) P3 possession suffixes in Popti' (Ross Montejo and Delgado Rojas 2000:100, 102)
  a. *q'ab'-e* 'mano (hand)', *ha-q'ab'* 'tu mano (your hand)'
  b. *sat-e* 'cara (face)', *ha-sat* 'tu cara (your face)'
  c. *ixal-e* 'esposa (wife)', *haw-ixal* 'tu esposa (your wife)'
  d. *ichamil-e* 'esposo (husband)', *haw-ichamil* 'tu esposo (your husband)'
  e. *hitxb'il-e* 'vestido (dress)', *ha-hitxb'il* 'tu vestido (your dress)'

Examples like (13a) and (13b) exhibit the more common pattern, with the unpossessed form exhibiting the suffix *-e(j)* and the possessed form lacking a suffix. However, (13c)–(13e) appear to exhibit the presence of frozen P3 unpossession suffixes in the nouns: unpossessed *ixal-e* may have been originally *ix-al*, but the *-e* (from **-eej*) was later added when *-al* became unproductive and frozen; unpossessed *ichamil-e* may have been originally *icham-il*, but the *-e* (from **-eej*) was later added when *-il* became unproductive and frozen; unpossessed *hitxb'il-e* may have been originally *hitx-b'il*, but the *-e* (from **-eej*) was later added when *-b'il* became unproductive and frozen, too. In fact, the case of *-b'il* could be further analyzed as *-b'-il*, which would point to the following stages: **-(V)b' > *-(V)b'-il > *-b'il > . . . b'il-e*. These *-il, -al*, and *-b'il* frozen suffixes all bear cognates in other Mayan languages; their fossilization close to the root indicates that they are older than the reflex of the **-eej* suffix that follows them. Below, I return to the issue of relative chronology of these suffixes.

Several reconstructions pertinent to P3 possession that were reviewed earlier, (5)–(10), can now be addressed. Table 5 provides the distribution of the various P3 possession suffixes attested throughout the family. Tables 6 through 9 isolate forms that I consider to be related (whether cognate or diffused).

TABLE 5
DISTRIBUTION AND RECONSTRUCTIONS OF P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	-la(a)b ~ -laap -lek, -ak				*-Vk
Yucatecan	-tsil; -b'il; -il			(*-(V)b'-) *-b'- ~ *-Vb'-il ~	
Greater Mamean	-b'il -b'aj, -b'j -j -aj	EM: *-b' ~ *-b'-il ~ *-b'-Vj;	*-b' ~ *-Vb'-il ~ *-b'-il; *-ats ~ *-its;	*-b'-il; *-Vts(?); *-il/*-iil; *-Vk	
Greater K'iche'an	-aaj, -eej, -iij; -ats, -its; -(a/i)x-eel; -niik; -b'ej; -b'ees; -ak, -(w)ik	*-ats ~ *-its; *-il (*-iil); *-aaj ~ *-iij ~ *-eej; *-Vk	*-il (*-iil); *-aaj (or *-aj) *-eej (or *-ej); *-Vk		
Greater Q'anjob'alan	-e(j); -its ~ -ats ~ -ots (frozen -b'il, -al, -il)	WM: *-Vb'-il ~ *-b'-il; *-ats ~ *-its ~			
Greater Tzeltalan	-tsil; <-as>; -b'il, -b'ir; -Vb'il; -il ~ -al	*-ts; *-il (*-iil) ~ *-al (*-aal); *-ej			

Table 6 presents the distribution of unposession suffixes sharing the phoneme *tz* (or *ts*), typically appearing in *-Vts* or *-tsil* forms across the family. Kaufman (2015a:700) reconstruted this suffix as Proto-Mayan **-itz ~ -atz* as the absolute marker of some nouns (cf. (5)), while Houston, Robertson, and Stuart (2001:43, 45) proposed its existence in Common Mayan (Proto-Mayan) and specifically suggested its use as an absolute marker for some kinship terms (cf. (9)). Following Kaufman's (1976, 2015a, 2017) model, its absence from Huastecan precludes a Proto-Mayan or Common Mayan reconstruction; its presence in Yucatecan and Central Mayan suggests a Late Proto-Mayan (or Southern Mayan or Core Mayan) reconstruction, likely as **-Vts* or **-(V)ts*. The suffix appears to have undergone changes in several subgroups and languages. Its attestation in Yucatecan and Ch'olan as *-tsil* suggests that a process of vowel syncope, upon addition of another suffix, followed by amalgamation, has taken place, that is, **. . . *CVC-Vts-Vl* > **. . . *CVC-ts-Vl*.* Only Yucatecan and Ch'olan attest to this contracted form with an additional suffix *-il*. Given the long history of interaction between Ch'olan and Yucatecan in the context of the Lowland Mayan contact area, it is entirely possible that diffusion is responsible for

TABLE 6
DISTRIBUTION OF *-*VTS* P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	—				
Yucatecan	YUK, MOP, ITZ: -tsil				
Greater Mamean	—	EM:		*-Vts(?)	—
Greater K'iche'an-	SAK -ats KAQ -äts POQ -b'ees POQ -is POQ -es	*-ats ~ *-its	*-ats ~ *-its		
Greater Q'anjob'alan	MCH -its ~ -ats ~ -ots	WM:			
	CHT, CHL: -tsil CHR: -tsir	*-ats ~ *-its ~ *-ts			
Greater Tzeltalan	CLM: <-as> (or <-is>) and possibly <-ats>				

this shared trait. If so, several options are available, depending on the direction of diffusion and whether the trait that was diffused was the amalgamation of *-il* or the entire sequence **-ts-il* (both the contracted suffix and the amalgamated suffix). The evidence from Greater K'iche'an and Greater Q'anjob'alan remain the most secure for the reconstruction of this suffix (cf. Kaufman 2015a:700). And with regard to Houston, Robertson, and Stuart's (2001:43, 45) suggestion concerning the semantic domain of this suffix—kinship terms—the evidence from Yucatecan, Ch'olan, and Greater K'iche'an (specifically Sakapultek (ISO 639-3 quv) and Kaqchikel (ISO 639-3 cak)) certainly provides support, although Poqom (Greater K'iche'an) uses its reflex with both kinship and parts-of-the-body terms and so does Mocho' (Greater Q'anjob'alan), given the data in Kaufman (1967).

In Classic Mayan writing, a possible reflex of Late Proto-Mayan **-ats ~ *-its* is attested with a few unpossessed body part terms, specifically *k'ab'* 'hand, arm' (**k'a:b'a-si**), *ti7* 'mouth' (**TI7-si**), *b'aah* 'head' (**B'AH-?-si**), *7ohl* 'heart' (**7OL-la-si**, **7OL-si**), *k'ahk'* 'fire' (**^{2}k'a-si**), and possibly *wahy* 'co-essence, shape-shifter' (**WAY-ya-si, WAY-si**) (Houston, Robertson, and Stuart 2001:17, 23; Zender 2004; Meléndez Guadarram 2007:87–88; Wald 2007:198–202; Lacadena and Davletshin 2013:20). Despite the fact that the phonetic spellings point to a shape for the suffix as <-as>, for example, **k'a:b'<u>a-si</u>** for *k'ab'-as*, a number of authors following the disharmony hypothesis (Houston, Stuart, and Robertson 1998, 2004) and morphosyllable hypothesis (Houston, Robertson, and Stuart 2001) suggest instead that the **si** syllabogram was read in these

contexts as a "morphosyllable" (i.e., grammatical logogram) **-IS**, rendering a suffix of the shape *-is*. In actuality, not a single example of an explicit phonetic spelling **Ci-si** for <is> is known: all examples of purely phonetic spellings of the suffix in question instead show **-Ca-si** for <-as>, while partial (abbreviated) logosyllabic spellings tend to involve a logogram followed by **si**. Given that the morpheme could have been realized either as **-ats* or **-its* in Late Proto-Mayan, it is not obvious whether a logosyllabic spelling like **TI7-si**, for instance, should spell **ti7-as* or **ti7-is*. A more pressing issue is the fact that, assuming a Ch'olan language as the basis for conservative spellings in the script, the consonant of this suffix is problematic: no regular correspondence can be called upon to explain the likely Classic Mayan form, <-Vs>, as no regular sound change of **ts > s* can be described for Ch'olan (or Yucatecan, for that matter).[12] And the documented Ch'olan and Yucatecan languages attest to a /ts/ consonant for this suffix, not /s/, for which several relevant **tsV** syllabograms (at least two allograms with the value **tsi**) would have sufficed.

Next for consideration is the suffix with the general shape *–(V)b'*; the distribution of the cognates is seen in table 7. Houston, Robertson, and Stuart (2001:43, 45d) suggest a form *-b'-* (i.e., **-b'*) reconstructible to Common Mayan and argue for its use with kinship terms (alongside the previously discussed suffix) (cf. (8)). The forms for Potosino Huastec and San Francisco Huastec are suggestive, given their shapes (*-laab* and *-laap*, respectively), and the fact that Proto-Mayan **b'* > Huastecan **b*. Also, this is not the only Huastec unpossession suffix of P3 constructions with an initial *l*—see below for discussion of *-lek* and *-Vk*. In Huastecan the suffix has retained productivity and was likely amalgamated to a *-Vl* or *-VVl* suffix that must have been productive previously. Given the Huastecan evidence, as well as the Ch'olan evidence, namely, Ch'olti' (no ISO 639-3 code) <-enbil> and Acalan (no ISO 639-3 code) <-abil> ~ <-ebil>, a Proto-Mayan shape **-ab'* seems plausible. Given the evidence from Yucatecan, Eastern Mayan, and Ch'orti' (ISO 639-3 caa), a Late Proto-Mayan form **-b'-* also seems plausible. Yucatecan *-b'il*, Mam *-b'il*, Popti' *-b'il*, and Ch'orti' *-b'ir* also suggest a more complex, Late Proto-Mayan form **-b'il*. Proto-Ch'olan must have had **-ab'-il ~ *-eb'-il*; contra Becquey (2014:374), who proposes a Proto-Ch'olan form **-V(n)b'il*, I am proposing that the Ch'olti' form <-enbil> innovated the <n> through excrescence and that it may have actually been closer to [-emb'il]. It is also clear that, except

[12] The similar change of **ts* > s attested in Poqom and Q'eqchi' is too late (Campbell 1973) to be related to that attested in Classic Mayan texts. I should note, though, that at least one Early Classic inscription (ca. sixth century CE), Panel 4 from Coba, bears a spelling **WAY-ya-ts(a)**, which could point to a suffix <-ats> that could be related to Late Proto-Mayan **-ats*, assuming that it spells *wahy-ats* 'co-essence'. A reviewer of this paper suggests that the **SAK-WAY-ya-si** expressions may be spelling the name of a feline rather than the term for 'co-essence'.

TABLE 7
DISTRIBUTION OF *-(V)B'-* P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	PH: -la(a)b				*-Vb'
	HSF: -laap				
Yucatecan	YUK: -b'il			(*-(V)b'-)	
Greater Mamean	MAM: -b'il	EM:	*-b' ~	*-b'- ~	
	MAM: -b'aj	*-b' ~	*-Vb'-il ~	*-Vb'-il ~	
	MAM: -b'j	*-b'-il ~	*-b'-il	*-b'-il	
	AWA: -b'aj	*-b'-Vj			
Greater K'iche'an	QEQ: -b'ej				
	POQ: -b'ees				
Greater Q'anjob'alan	POP: Frozen -b'il	WM:			
Greater Tzeltalan	CHT: <-bil>, <-enbil>	*-Vb'-il ~			
	CHR: -b'ir	*-b'-il			
	ACL: <-abil> ~ <-ebil>				

for Huastecan, the other unpossession suffixes either replaced the **-Vb'-* suffix once it became unproductive or were tacked on to reinforce it, resulting in amalgamation. In the latter case, it is possible to determine the chronology of innovation of suffixes: **-Vb'-* preceded both the *-Vl* and *-Vj* suffixes. The evidence from Poqom, with *-b'ees*, *-is*, and *-es*, suggests that the **-Vts* suffix also postdates the **-Vb'-* suffix, leading to the following preliminary general chronology: **-Vb'-* > **-Vts*, followed by **-Vl* and then **-Vj* (recall (13c)–(13e)). The Huastecan data could suggest that a **-Vl* or **-VVl* suffix may have ultimately preceded the **-Vb'* suffix. Regarding the semantics, in Huastec basically all unpossessed nouns require the unpossession suffix, suggesting generalization; in Yucatecan and Ch'olan the suffix is exclusively attested with kinship terms; in Greater Mamean the suffix may be used with either kinship terms or parts-of-the-body terms, as well as the occasional verbal noun root (e.g., 'dance') or article of clothing (e.g. 'hat'); and in Greater K'iche'an all published examples seem to be kinship terms. Thus, Houston, Robertson, and Stuart's (2001) proposed primary semantic domain for this suffix is supported.

Table 8 provides the distribution of *-Vl* suffixes involved in P3 possession. Houston, Robertson, and Stuart (2001:43, 45) propose that it constitutes an innovation of "lowland languages"; a more precise term would be Greater Lowland Mayan (Justeson et al. 1985), since it includes Yucatecan, Ch'olan, and Tzeltalan. The *l* phoneme evident in the Huastecan forms is not obviously cognate; I will exclude it for the moment, until more data can be examined.[13]

[13] It is possible that the *-laab* and *-lek* suffixes of Huastec could contain an earlier **-V(V)l* suffix (i.e., *-Vl-aab*, *-Vl-ek*), a suggestion already raised by Ochoa Peralta (1984:86) with regard

The suffix is clearly present as *-il* in the Yucatecan languages, suggesting a Proto-Yucatecan form **-il*. It is also likely the form that was used to reinforce the *-ts* and *-b'* suffixes once they became unproductive. In Greater Mamean it appears in the form *-b'il*.[14] As argued above, both *-b'il* and *-al/-il* appear to be frozen, fossilized, in Greater Q'anjob'alan (cf. (13)). Lastly, they are amply attested in Greater Tzeltalan, as *-il* and *-al* and -äl (Ch'oaln) as well as *-il ~ -al ~ -ol* (Tzeltalan). As Becquey (2014:372–76) has pointed out, these *-Vl* suffixes became unproductive in Chontal/Yokot'an and Eastern Ch'olan (Ch'olti', Ch'orti'), surviving primarily in compound nouns and idiomatic expressions. Although it is well established that Pre-Ch'olan must have retained phonemic vowel-length contrasts, it is not yet clear that this was the case in the suffixal domain; as already noted, Yucatec Maya has retained phonemic vowel-length contrasts in lexical roots, but all grammatical morphemes have neutralized such contrast. Thus, it is possible to propose that Western Mayan had **-iil* and **-aal*, and possibly Greater Tzeltalan and Pre-Ch'olan as well, but following Kaufman and Norman (1984), who argue that Proto-Ch'olan lost phonemic vowel-length contrasts, it is advisable to reconstruct **-il* and **-al* to Proto-Ch'olan. And since it appears that Yucatecan lost vowel-length contrasts in grammatical morphemes, Yucatecan cannot give us evidence for **-iil*, only **-il*. Greater Mamean *has* retained vowel-length contrasts in grammatical suffixes; the fact that the *-il* suffix in the *-b'il* forms in Mam (ISO 639-3 mam) and Tektiteko (ISO 639-3 ttc) does not display it suggests that the suffix was not **-iil*. Thus, I reconstruct **-il* to Late Proto-Mayan; this would call for a revision to the Western Mayan (and Greater Tzeltalan and Pre-Ch'olan) reconstruction, too: **-il* and **-al*. This could suggest that this suffix is distinct from the **-iil ~ *-aal* 'abstractivizer' reconstructed below, a matter to which I return in **4.5** and **4.6**.

The semantic domain of this suffix remains to be discussed. Becquey (2014:374) has argued that the **-Vb'-il* form (his **-V(n)b'il*) was an absolutivizer of kinship terms and the **-Vl* form an absolutivizer of body part terms. The evidence could very well support it, though as Becquey points out, Western Ch'olan would have expanded the realm of application of the **-Vl* suffixes to both kinship and body part terms. In Tzeltalan the *-Vl* suffixes are used with both kinship and body part terms as well as items of clothing. And in Yucatecan, **-Vl* is utilized with social terms and body part terms, although **-tsil* is used with kinship terms. It can be argued that originally this **-Vl* suffix was applied primarily to part-of-the-body terms and that once the **-(V)b'-* and **-(V)ts-* suffixes became less productive in the realm of kinship, the **-Vl* suffix reinforced

to *-lek*. But even if that were the case, there would still be no direct basis for assuming that such an original *-VVl* suffix was cognate with the one attested in Greater Tzeltalan and Yucatecan.

[14] I do not consider the Greater K'iche'an form **-Vxeel* to contain a cognate of this morpheme.

these, too, although a trend that would eventually replace the **-tsil* and **-b'il* forms was set in motion for at least a few of the languages that preserve only, or mostly, **-Vl*. Ch'ol provides productive uses of the suffix for tools, mostly derived nouns (instrumentalized verb stems). Classic Mayan may attest to at least two such examples. Zender (2004:207) makes a case for a spelling **7IX-k'a[b'a]-la XOK-ki**, which that author proposes spells a phrase *7ix+k'ab'-al xook* 'Lady Shark Fin', where *k'ab'-al* would be analyzed as hand/arm-P3.POSS. Mora-Marín (2001:126–27, 2010:150–151) notes the case of the unpossessed 'drinking cup' expression, spelled **7u-k'i-b'a**, likely for *7uk'-ib'-ä(l)* 'cup (unpossessed)', paralleling the unpossessed form for 'cup' in Modern Ch'ol, *7uch'-ib'-äl*. When possessed, the 'drinking cup' expression is most commonly spelled **yu-k'i-b'i**, for *y-uk'-ib'* 'his/her cup' (3A.SG-drink-INSTR), or as an abbreviated spelling of *y-uk'-ib'-i(i)(l)* (3A.SG-drink-INSTR-P4.POSS) 'the cup for him/her', as argued in **4.4**.

The last major unpossession suffix is the *-Vj* suffix, whose attestation is shown in table 9. As already pointed out, Houston, Robertson, and Stuart

TABLE 8
DISTRIBUTION AND RECONSTRUCTION OF **-V(V)L* P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	PH: -la(a)b				—
	PH: -lek				
	HSF: -laap				
Yucatecan	YUK, MOP, ITZ: -tsil			*-il (*-iil)	
	YUK: -b'il				
	YUK, MOP, YUK, ITZ: -il				
Greater Mamean	MAM: -b'il	*-il	*-il (*-iil)		
	TEK: frozen -b'il				
Greater K'iche'an	KCH: -(a/i)xeel				
	TZU: -axeel				
	KAQ: -axel				
	SAK, USP: -xeel				
Greater Q'anjob'alan	POP: frozen -b'il	*-il (*-iil)			
	POP: frozen -al, -il	*-al (*-aal)			
Greater Tzeltalan	CHT, CHL: -tsil, -b'il, <-enbil>				
	CHR: -tsir, -b'ir, -ir				
	CHT: -Vb'il				
	CHL: -äl, -al, -il				
	ACL: <-abil> ~ <-ebil>				
	YOK': -a, -i, -tsi				
	TZO, TZE: -il				
	TZO: -al, -ol				

TABLE 9
DISTRIBUTION AND RECONSTRUCTION OF *-*V(V)J* P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	—				
Yucatecan	—				
Greater Mamean	MAM: -[b'ʼ]aj, -aj, -j, -[b'ʼ]j	*-[b'ʼ-]VVj	*-aaj (or *-aj)		
	AWA: -b'ʼaj, -aj	*-aaj	*-eej (or *-ej)		
	TEK: -j	*-iij			
Greater K'iche'an	KCH: -aaj, -eej	*-eej			
	TZU: -aaj, -iij, -eej				
	KAQ: -aj, -ij, -ej				
	SAK: -aj				
	QEQ: -[b'ʼ]ej, -ej				
Greater Q'anjob'alan	QAN: -ej, -e(j)	*-ej			
	AKA: -e				
	POP: -e				
Greater Tzeltalan	—				

(2001:43, 45) had proposed a Common Mayan reconstruction (cf. (6)).[15] They also proposed a more general semantic scope for nouns that could take this suffix: "mainly (but not exclusively) clothing, body parts, and kinship terms." Its absence from both Huastecan and Yucatecan precludes a Proto-Mayan reconstruction. At the earliest, it would be traced back to Central Mayan. In Greater Mamean, the suffix appears only with a plain vowel, *a* (*-b'aj*, *-aj*), not long, same as in Greater Q'anjob'alan, where it only appears with the plain vowel *e* (*-ej*, *-e*). Only in K'ichee' and Tz'utujil does it appear with long vowels, *-aaj* and *-iij* in K'ichee' and *-aaj* ~ *-iij* ~ *-eej* in Tz'utujil. Tentatively, I reconstruct it to Central Mayan as **-aaj* ~ **-eej*; across the languages that attest to it, it appears with kinship terms and parts-of-the-body terms, as well as some items of clothing, and a few other nouns that can be construed as belonging inalienably to an entity (e.g., 'name'). At this point, I only need to raise one more issue, that of relative chronology: the **-VVj* suffix was innovated after the **-(V)b'-* suffix had become unproductive, replacing it in some cases but in

[15] Previously, Houston, Robertson, and Stuart (2001) and Zender (2004) had argued for the presence of unpossession suffixes of the shapes *-aaj* and *-is*. Mora-Marín (2001:81) had previously suggested the possibility that the likely *-aaj* (or *-aj*) suffix (and its allomorph, *-iij* or *-ij*) could instead be an intransitivizer, a possibility more recently assumed, though not articulated in detail, in treatments by Lacadena and Davletshin (2013:42) and Law and Stuart (2017:153–54). Such reanalysis means that it is no longer necessary to argue for the presence of the **-aaj* ~ **-iij* 'unpossession suffixes' in Classic Mayan texts.

TABLE 10
DISTRIBUTION AND RECONSTRUCTION OF *-*VK* P2 POSSESSION SUFFIXES

	Suffixes	EM, WM	CM	LpM	pM?
Huastecan	-lek, -ak				*-Vk
Yucatecan	—			*-Vk	
Greater Mamean	—	EM:	*-Vk		
Greater K'iche'an	POQ: -ak, -(w)ik	*-Vk			
	USP: -niik				
Greater Q'anjob'alan	—				
Greater Tzeltalan	—				

others attaching to it, reinforcing it. Given the fossilized examples of *-il*, *-al*, and *-b'il* attested in Popti', discussed above (cf. (13)), which were in each case followed by the suffix *-e* (< *-*ej* < *-*VVj*), it can also be argued that *-*VVj* was innovated after *-*il* and *-*al* (or *-*iil* and *-*aal*) and *-*b'il* had been innovated and employed productively for some time. Consequently, the following relative chronology can now be supported: *-*Vb'* > *-*Vts* > *-*Vl* > *-*VVj*.

Finally, one more suffix of P3 possession, reconstructible to early stages, may be attested in Mayan languages, although this is a minor case in terms of its overall distribution (cf. table 10). Huastec exhibits a suffix of the form *-lek*, perhaps composed of *-*Vl-ek* (Ochoa Peralta 1984:86). The second suffix in this sequence, *-ek*, could be cognate with the form *-ak* from Poqom (also Poqom *-(w)ik*) and with the last two segments (/iik/) of the Uspantek form *-niik*. At least one Huastec noun could bear a frozen remnant of such suffix, for example, *k'ubak* 'hand', from Proto-Mayan **q'ab'*. This possiblity finds internal support in the Huastec form *txan=k'ub* 'centipede (snake=hand)', where *=k'ub* 'hand', the second term of the compound, lacks *-ak* (Kaufman with Justeson 2003:336). Edmonson (1988:266) identifies this suffix as *-Vk* and provides a number of instances with "unique constituents" of the shape CVC (e.g., *k'ub-ak* 'hand', *tiy-ik* 'arm', and *toy-ok* 'hip bone') as well as derived nouns (e.g., *7at-ik* 'infant, child' from *7at* 'companion' and *huun-ik* 'companion' from *huun* 'one').

4.4. Possession type 4: Dative abstractive possession, *Set A-CVC-Vl, *CVC-Ø. For some Mayan languages this type of possession is marked with the same suffixes used for systemic (abstractive) possession, P5, below; therefore, in those languages, P4 possession does not constitute a distinct category. But for other Mayan languages, as briefly illustrated in table 2 and more thoroughly documented in Online Appendix 2.4, a different suffix is utilized, justifying a different formal definition of this type of possession strategy. In those other languages, P4 possession resembles both P5 and P6 possession, except for the suffixes used in the case of P5 possession, and the fact that

P4 possession is characterized by animate possessors, whereas P6 possession is characterized by inanimate or collective possessors. The use of this type of possession may result in a construction semantically analogous to a dative construction (cf. Hofling 1990:550–51; Bricker, Po7ot Yah, and Dzul de Po7ot 1998:359): the possessor of the possessed noun marked with the suffix may bear a role unrelated to possession (e.g., benefactive, malefactive, recipient, goal) or constitute the person responsible for the possessee's existence (e.g., the farmer who grew a crop, the painter who created a work of art, etc.). The use of the suffix, argued to be an abstractivizer, may be a response to a non-prototypical possession scenario (Hofling 1990:555); if so, instances where the possessor is construed, from the overall discourse context, as beneficiary, malefactive, recipient, or goal are deemed non-prototypical roles for the possessor and call for derivation by means of a *-Vl* (*-VVl*) suffix. Table 11 presents the attested forms and reconstructions. Because this distinct marking is attested exclusively in Greater Tzeltalan and Yucatecan, it is not possible to know at this time whether these suffixes were *-VVl in shape instead of simply *-Vl: both Ch'olan and Tzeltalan have neutralized vowel-length contrasts in general (Kaufman and Norman 1984), while Yucatecan appears to have done so in grammatical morphemes specifically, with suffixes containing a plain vowel inherited from Proto-Mayan *VV showing simply /V/.

The examples in (14) from Yucatec by Bricker, Po7ot Yah, and Dzul de Po7ot (1998) contrast with examples of P1a and P4 possession: (14a) is a case of P1 possession (simple ownership), while (14b) is case of P4 possession that expresses the notion of 'pertinence' (i.e., about John, pertains to John); (14c) is a case of P1 possession, while (14d) illustrates a benefactive function of P4 possession.

(14) P4 examples from Yucatec (Bricker, Po7ot Yah, and Dzul de Po7ot 1998:50, 61, 96, 128, 219)

a. u+ts'íib j+Waan 3sE+writing MALE+John

John's writings (written by him)

TABLE 11
P4 Possession Suffixes, *-*IL*, Possibly Also *-*AL*

	Suffixes	Subgroups	Subfamilies	pM
Huastecan	—		—	—
Yucatecan	-il (~ -al?)	*-il (~ *-al)	—	
Greater Mamean	—	—		
Greater K'iche'an	[P5]			
Greater Q'anjob'alan	—			
Greater Tzeltalan	-il, -il-el, -lel	*-il		

b. u+ts'íib-**il** j+Waan
3sE+writing-P4POSS MALE+John
John's biography (written about him)

c. u+chaak j+Waan
3sE+pot.of.food MALE+John
John's pot of food (cooked by him)

d. Lel+a' u+chaak-**il** j+Waan
DEM+PROX 3sE+pot.of.food-P4POSS MALE+John
This is John's pot of food (cooked for him)

P4 possession—as a distinctly marked category—is not of considerable antiquity. It is absent from Huastecan, Greater Mamean, and Greater Q'anjob'alan. Greater K'iche'an exhibits similar constructions, but their marking cannot be distinguished from that of P5 constructions. An example from K'ichee', derived by means of an *-iil* suffix, is provided by Sis Iboy (1994:58): *u-wuj-iil* 'su papel (de identificación, documentos, etc.)'. However, this example is consistent with the set of suffixes available for P5 possession (*-iil, -eel, -aal*). In contrast, the Yucatecan and Greater Tzeltalan languages show, in general, distinct marking for P4 and P5 types of possession. The difference is more clearly observed in the Yucatecan languages, where *-il* is used for P4, with very few cases of *-al*, while *-el* is used for P5 (with very few instances of *-il*, seemingly for non-prototypical cases of P5 possession). In Greater Tzeltalan the suffix *-il* is generally used for P4 possession, although in Ch'ol one finds *-il-el*, showing amalgamation through the addition of *-el*. The situation regarding P5 possession is a lot more complex in Greater Tzeltalan: most of the languages attest to *-al* (Ch'ol, Ch'orti', Tzeltal, Tzotzil); two languages attest to *-il* (Ch'ol and Yokot'an, both with the root for 'veins'); most of the languages attest to *-el* ~ *-Vl-el* ~ *-l-el* (Ch'ol, Yokot'an, Ch'orti', Ch'olti'); and one language (Tzeltal) attests to *-ul*. In other words, in the Greater Lowland Mayan contact area, P4 possession uses *-il* or *-al* primarily, while P5 possession uses *-el* primarily, especially in Yucatecan (categorical) and Ch'olan (Ch'ol, Yokot'an, Ch'olti', and, to a lesser extent, Ch'orti'), but only to a small degree in Tzeltalan. The use of *-el*, through amalgamation, with P4 possession is a late development seen in Ch'ol. The categorical use of *-el* for P5 possession was apparently a Yucatecan innovation that spread to Ch'olan, prior to its differentiation into Eastern and Western Ch'olan, and perhaps from Ch'olan (or even Western Ch'olan) into the Tzeltalan languages. It seems that P4 possession morphology matches the **-iil* ~ **-aal* 'abstractivizer' suffixes of Late Proto-Mayan, discussed in **4.5**. It is through the process of categorization of *-el* (< **-eel*) for P5 possession that P4 and P5 possession strategies became overtly contrasted.

Classic Mayan inscriptions very likely attest to this P4 suffix. For example, of the several hundred pottery vessels inscribed with the expression **yu-k'i-b'i** for *y-uk'-ib'* (3sE-drink-INSTR) 'his/her cup', at least 17 examples are spelled **yu-k'i-b'i-la** (and a couple show **yu-k'i-b'i-li**), pointing to an expression *y-uk'-ib'-il* or *y-uk'-ib'-iil* (Mora-Marín 2010:134).[16] It has been shown that drinking cups were generally used as gifts; given this context, it is likely that the *-i(i)l* suffix in question could have functioned as a P4 possession suffix, resulting in a benefactive meaning of *y-uk'-ib'-i(i)l*, 'the cup for (him/her)'. This expression is often followed by the proper name and/or titles of the cup's (intended) owner. In fact, most of the examples of "otherworldly" possession involving a *-Vl* suffix proposed by Houston, Robertson, and Stuart (2001:27) include architectural and sculptural works (steps/stairways, houses/niches, sweatbaths, portraits) that were crafted and dedicated *for* rulers or deities, implying a benefactive role. Such expressions can be defined as cases of dative abstractive possession; a couple of examples of such constructions are discussed in more detail in **4.6** with regard to examples where a noun exhibiting a suffix for P6 possession is possessed by an inanimate noun exhibiting P4 possession.

4.5. Possession type 5: Systemic/extension abstractive possession, Set.A-CVC-VVl, CVC-Ø. This type of possession may be characterized as follows: when the noun exhibits P1 possession, it refers to a detached, alienable form (e.g., meat for purchasing/selling/eating; skin for leather; etc.); when possessed with the P5 possession by means of the *-VVl* suffix, it refers not only to an attached form but also to a form that is distributed throughout (a significant portion of) the body (i.e., is systemic or extended) and/or is not subject to voluntary control (Blair 1964:50; Bricker, Po7ot Yah, and Dzul de Po7ot 1998:359). As such—a part of the body—it is inalienable, like any other part of the body (e.g., head, eye, nose, tongue, neck, hand, foot, etc.) is to the organism it is a part of.[17] Although this type of possession prototypically applies to nouns that refer to parts that can be detached from a body (skin, hair, blood, bones, etc.), in some languages, at least, it may also apply to nouns that refer to materials or substances or light phenomena that can cover (e.g., paint, mud, water) or extend from (e.g., shadow) a body. Additionally, in some of the subgroups (Greater Mamean, Greater K'iche'an), the same suffix that marks

[16] Mora-Marín (2010) has shown that consonant deletion was a very common practice in Classic Mayan texts, as initially suggested by Bricker (1989) and further supported by Zender (1999). Mora-Marín even suggests that the **yu-k'i-b'i** expressions were actually intended to spell *y-uk'-ib'-il* but only partially, as *y-uk'-ib'-i(l)*, given that final /l/ was one of the "weak consonants" that was likely to be lenided and further deleted before consonants and word finally.

[17] See discussion in Online Appendix 1, particularly of Lehmann's (2003:80) treatment of Yucatec nouns in *-el*.

P5 possession also conveys the equivalent of P4 possession (e.g., benefactive, malefactive, recipient, goal), as already described in **4.4**.

Kaufman with Justeson (2003:285) reconstructs several Proto-Mayan etyma that participate in this type of possession: **7ism* 'fuzz' and **r-ism-aal*, presumably for 'its fuzz (of an animal)', as well as **b'aaq* 'bone' and **u-b'aaq-eel* presumably for 'his/her/its bone (of an animal)'. However, given the evidence presented in table 12, it is necessary to restrict Kaufman's (2015a:700) reconstruction of Proto-Mayan **-eel ~ *-aal* to only **-aal*, given the absence of *-eel* or *-el* in Huastecan. Given the Yucatecan evidence, though, **-eel ~ *-aal* can be reconstructed to Late Proto-Mayan.

A related phenonemon is that of the derivation of abstract nouns from nouns and adjectives and the similarity of the abstractive suffix and the P5 suffix discussed in this section. Dayley (1985) discussed this similarity at length for Tz'utujil (cf. **3.4.2**) and argued, in fact, that the two processes were based on the same suffix. For his part, Kaufman (2015a:701) distinguishes the two. His reconstruction for the abstractivizing suffix follows:

(15) Most Mayan languages show reflexes of a Proto-Mayan suffix **-aal ~ *-iil* that derives an abstract noun from an adjective.

In contrast, Kaufman (2015a:700) reconstructs what I refer to as the P5 suffix as **-eel ~ *-aal*, which I have argued is Late Proto-Mayan, since Proto-Mayan can only be reconstructed with **-aal*. Kaufman adds: "However, no currently spoken language marks part possession and abstract noun in precisely the same way across the board" (2015a:68). In **3.4.2** and this section I noted that Dayley has argued that in Tz'utujiil this type of possession uses the same set of allomorphs used for abstractivization. To test this idea further, I have collected data on the abstractivizing suffixes, specifically those that abstractivize adjectives and nouns. The data are found in the Online Appendix 3 and summarized in table 13.

TABLE 12
RECONSTRUCTION OF P5 POSSESSION SUFFIXES

	Suffixes	Mesolanguages		LpM	pM
Huastecan	-Ø, -aal ~ -al				*-aal
Yucatecan	-el, -al			*-eel, *-aal	
Greater Mamean	-il, -eel	EM:	CM:		
Greater K'iche'an	-iil, -eel, -aal, -uul	*-iil, *-aal, *-eel	*-iil, *-eel, *-aal		
Greater Q'anjob'alan	-il, -al	WM:			
Greater Tzeltalan	-el, -al	*-iil, *-aal, *-eel			

TABLE 13
DISTRIBUTION AND RECONSTRUCTION OF *-VVL* 'ABSTRACTIVIZERS'

	Suffixes	Subfamilies	LpM
Huastecan	CVVC-Ø, CVC-tal, CVVC-tal		
Yucatecan	-il, -al	Yu: *-il, *-al	*-iil ~ *-aal
Greater Mamean	-ab'iil ~ -al, -leen, -le7n	EM: *-iil ~ *-aal	
Greater K'iche'an	KCH: -iil KAQ: -il POQ: -iil ~ -aal TZU:-aal, -eel, -iil, -uul		
Greater Q'anjob'alan	-il ~ -al	WM: *-il ~ *-al (< *-iil ~ *-aal)	
Greater Tzeltalan	-il, -al, -ul, (-Vl-el)		
Classic Mayan	-il, -al, -(V)l-el		

First, the data permit the reconstruction of Late Proto-Mayan **-iil ~ *-aal* 'abstractivizer', in support of Kaufman's (2015a) proposal. An account of their allomorphic distribution cannot be offered at this point: the descendant languages vary widely in the mechanism (lexical, assimilatory, dissimilatory, phonotactic) used to determine their distribution, and the issue deserves full exploration at a later time. The *-(V)l-el < *-(VV)l-eel* suffix of Greater Tzeltalan is a more recent innovation, postdating its breakup into Ch'olan and Tzeltalan (Mora-Marín 2009b; Mora-Marín 2017), and its introduction and diffusion is attested in real time in Late Classic Mayan (ca. CE 600–900) texts.[18] It is thus not relevant for the reconstruction of higher orders. The data at first seem to suggest that this derivational suffix may be distinct, etymologically, from the inalienable suffix **-eel ~ *-aal* of Late Proto-Mayan, **-aal* of Proto-Mayan, but more careful analysis is needed to address this question.

The Yucatec examples in (16) provide support for Dailey's (1985) suggestion of a relationship between P5 suffixes and the abstractivizers. The first example, (16a), illustrates P1 possession of the noun *lùuk'* 'mud', whereas in (16b) the suffix *-el* is utilized, resulting in a meaning that turns 'mud' into a systemic part of the body. Examples like these suggest that *-el* is at its core an abstractivizer and that it essentially signifies an extension of the body or systemic connection to the body. Interestingly, *lúʔum* may use either *-el* or *-il* with this extension/systemic meaning, as in (16d) and (16e). The use of *-il* supports the contention

[18] In Ch'olan, **-eel > *-el* was tacked on to the preexisting abstractivizers **-iil > *-il* and **-aal > *-al*, resulting in **-il-el*, **-al-el*, and **-l-el*, and today in Yokot'an, at least, it is exclusively /-lel/.

that the *-el* suffix of P5 possession is an abstractivizer, the one used with nouns that are more prototypical of the 'systemic/extension' meaning. Note also the way in which the vowel of the Yucatec root for 'flesh' is shortened upon addition of the *-el* suffix, as seen in (17). This is reminiscent of abstractivization in other Mayan languages: López Ixcoy (1994:73–74) explains that in K'ichee' certain nouns undergo vowel lengthening upon possession, as seen in the examples (18a) and (18b), but the vowel shortens again when the root is derived with the abstractivizer suffix *–VVl* (*-iil ~ -aal ~ -uul*), as in (18c). Thus, Yucatec *-el* behaves more like a derivational suffix, an abstractivizer, rather than an inflectional suffix.[19] In addition to *lùuk'* 'mud', only *lúʔum* appears to also take *-el* in this context; the other two, 'soot' and 'water', take *-il*. But this is to be expected: perhaps frequency of use in this context (abstractivization of a noun to express that it has become an extension or systemic component of the body) leads the entrenching of the *-el* suffix that is most commonly used with this meaning.

(16) Yucatec (Bricker, Po7ot Yah, and Dzul de Po7 1998:91, 174, 175, 238)
   a. P1: *in+lùuk'* 1A.SG+mud 'my mud (for building a wall)'
   b. P5: *in+lùuk'-**el*** 1A.SG+mud-P5POSS 'my mud (dust mixed with sweat on body)'
   c. P1: *in+lúʔum* 1A.SG+mud 'my land'
   d. P5: *in+lúʔum-**il*** 1A.SG+mud-P5POSS 'my earth [on my body]'
   e. P5: *in+lúʔum-**el*** 1A.SG+mud-P5POSS 'my earth [on my body]'

(17) Yucatec (Bricker, Po7ot Yah, and Dzul de Po7 1998:25)
   a. *bak'* 'meat'
   b. P2: *in+bàak'* 1A.SG+flesh/meat 'my meat (bought at the market)'
   c. P5: *in+bak'-**el*** 1A.SG+flesh/meat-P5POSS 'my flesh (of my body)'

(18) K'ichee' vowel-length alternations (López Ixcoy 1994:73–74)
   a. *tz'i'* 'perro (dog)'
   b. *u-tz'ii'* 1A.SG-dog 'su perro (his/her dog)'
   c. *u-tz'i'-**uul*** 1A.SG-dog-ABSTR 'su picardía (his/her salaciousness)'

Classic Mayan hieroglyphic inscriptions attest to a few examples of P5 possession, as reported by Grube and Martin (2000), Houston, Robertson, and

[19] Besides 'mud' and 'land, earth; spleen', other nouns that are not parts-of-the-body terms may experience P5 possession through abstractivization: *haʔ* 'water' and *sab'ak* 'soot' (Bricker, Po7ot Yah, and Dzul de Po7ot 1998:91, 238).

Stuart (2001), Meléndez Guadarram (2007), and others; the suffix is spelled fully in **7u-b'a-ke-le B'ALAM** for *u+b'aak-eel b'ahlam* (3A.SG+bone-P5POSS) 'the bone of the jaguar', and partially in **7u-**BLOOD**-le**, presumably for *u+k'ik'-eel* or *u+ch'ich'-eel* (3A.SG+blood-P5POSS) 'his/her blood'.

4.6. Possession type 6: Inanimate abstractive and part-whole possession, Set.A-CVC-VVl, CVC-Ø. Inanimate possession is characterized by the following traits: it applies to a variety of nouns; the noun takes a *-VVl* suffix; the noun is possessed by an inanimate or impersonal possessor (e.g., a collective); and it is common for the construction to denote a situation involving semantic roles other than ownership, for example, part-whole, purpose/function, source/location, goal, and the like. It is distinguished morphologically in most of the subgroups except for Greater K'iche'an. See table 2 for an example and Online Appendix 2.6 for datasets from each subgroup. Table 14 presents the relevant morphemes and the proposed reconstructions.

Three facts require mention. First, in Greater K'iche'an and Greater Mamean, this type of possession is realized by means of P5 possession suffixes, argued in **4.5** to be abstractivizers. Second, as already noted in **4.1**, prototypical meronymic (part-whole) relationships involving an inanimate possessor, as seen in Itzaj (ISO 639-3 itz) *u-pach k'ab'* 'back of hand' and Mam *t-q'ab' a'* 'branch of a river', do not take a suffix and function, essentially, as cases of inalienable possession. It is the non-prototypical and non-metaphorical relationships between a possessee and an inanimate possessor that seem to require a *-VVl* suffix, as in Q'anjob'al (ISO 639-3 kjb) *y-ixim-al s-q'ab* (3A.SG-corn-P6POSS 3A.SG-hand/arm) 'his/her fingers (lit. its corn(s) his/her hand(s))' (González et al. 2000:94). And third, the suffixes in question generally match the Late Proto-Mayan abstractivizing suffixes **-iil ~ *-aal ~ *-eel*. In the Greater Q'anjob'alan, Greater Tzeltalan, and Yucatecan, P6 is **-il ~ *-al*.[20] Consequently, the abstractivizing suffix may have been behind the development of P6 markers.

Classic Mayan texts provide evidence for overt marking of P6 possession (Meléndez Guadarram 2007:105–6). Houston, Robertson, and Stuart (2001:26–27) refer to a few of these examples as "partitive" possession. In (19a), partially cited in Houston, Robertson, and Stuart (2001:27, Fig. 10), the term *ts'ihb'* 'writing' is marked for possession with *u* '3A.SG', spelled with the syllabogram **7u**, which indexes the grammatical person of its possessor, spelled by the following term, *y-uk'-ib'-i(l)* (3A.SG-drink-INSTR-P4POSS) 'his/her drinking

[20] As stated earlier, Yucatecan vowel length in suffixes was neutralized; apparently this was the case too in Greater Q'anjob'alan. And in all Greater Tzeltalan languages vowel length contrasts were lost, eventually, after their differentiation from each other, in both lexical and grammatical morphemes. So one would expect **-il ~ *-al* as reflexes of Late Proto-Mayan **-iil ~ *-aal* in these three subgroups.

TABLE 14
DISTRIBUTION AND RECONSTRUCTION OF P6 POSSESSION MORPHOLOGY

	Suffixes	WM	CM	LpM	pM
Huastecan	*-VV$_1$l*, -iil, -liil				*-iil
Yucatecan	-il, -al			*-iil ~ *-aal	
Greater Mamean	[P5]		*-iil		
Greater K'iche'an	[P5]				
Greater Q'anjob'alan	-il, -al	*-iil ~ *-aal			
Greater Tzeltalan	-il, -el, -al, -ul (Tz); -il, -al, -el, -lel (Ch')				

vessel' (or 'the drinking vessel for (him/her)'), spelled **yu-k'i-b'i**, itself possessed by an individual whose name phrase follows and likely functioned as an intended recipient. Because *ts'ihb'* is possessed by an inanimate entity ('his/her drinking vessel'), it takes the suffix *-al* or *-aal* for P6 possession, spelled with the last two syllabograms of the spelling **7u-ts'i-b'<u>a-l</u>(i)** for *u+ts'ihb'-a(a)l* 'the writing of/on/for (something)'.[21] In (19b), also partly cited in Houston, Robertson, and Stuart (2001:27, Fig. 10) but incorrectly sourced as Yaxchilan Lintel 24 instead of the actual source, Yaxchilan Lintel 23, the term *pas* 'to open' is nominalized and possessed by an inanimate possessor, *y-otot*, itself possessed by an individual (Lady K'ab'al Xook) whose name phrase follows. Again, because *pas* (perhaps *paas*) is possessed by an inanimate entity (*y-oto(o)t* 'the home of'), it takes the suffix *-il* (or *-iil*). And in (19c) we see a similar pattern: here, *y-ehb'-ul* 'the step/stairway of' is followed by the inanimate possessor *u-mu(u)k-ul(-il)* 'the burial of/for', possessed by an individual (a lord of Copan) for whom the burial/grave was constructed. In (19c) the P6 suffix is rendered as *-ul* (or *-uul*). [22]

(19) Classic Mayan (Ch'olan varieties):[23]
a. Vessel K5022 (Justin Kerr Archive)
7a-7AY-ya hu-7u-yi

[21] Alternatively, both *u+ts'ihb'-a(a)l* and *y-uk'-ib'-i(i)l* could be coordinate subjects of the verb. However, the fact is that the cup is decorated with a painted text, and that is what the term *u ts'ihb'-al* could be referring to.

[22] Since colonial and contemporary Ch'olan languages do not exhibit the *-ul* < *-uul* suffix in this context of P6 possession while Tzeltalan languages do, we can surmise that this was a Greater Tzeltalan trait that has been eroded from Ch'olan and, thus, that Classic texts point to a retention in their use of this allomorph.

[23] In my transcription and transliteration of glottal stop in Mayan hieroglyphic writing I am assuming that the **7u** syllabogram could represent both glottal stop-initial roots (e.g., **7u-k'i-b'a** for *7uk'ib'-al* 'vessel for drinking') as well as grammatical morphemes that were vowel-initial (e.g., *u+* '3A.SG'). The same applies to the syllabogram **7a**, which can be used in the spelling of *7aajaaw* 'lord, ruler' and also of *a+* '2A.SG'.

7ay-Ø hu7-uy-i-Ø[24]
EXIST-3A.SG sigh/make-INCH-CMP-3B.SG
7u-ts'i-b'a-li yu-k'i-b'i — 7u-lu
u+ts'ihb'-a(a)l y-uk'-ib'-i(i)l *ta 7uul
3A.SG+writing-P6POSS 3A.SG-drink-INSTR-P4POSS PREP atole
?-CHAPAT K'IN-7AJAW-wa [. . .]
?-chapaht k'i(i)n-7a(a)ja(a)w
?-centipede sun-lord/ruler

'The writing on the drinking vessel of ?-Centipede Sun-Lord became/got sighed/finished'

b. Yaxchilan Lintel 23:B2-D2
K'AL-wa-ni
k'al-wan-i-Ø
close/wrap/lock-POS.IVZR-CMP-3B.SG
7u-pa-si-li yo-7OTOT-ti [. . .]
u+pa(a)s-i(i)l y-oto(o)t(-i(i)l)
3A.SG+open(ing)-P6POSS 3A.SG-house(-P4POSS)

'the opening (door) of the house of [Name phrase of Lady K'ab'al Xook] was/got covered/wrap/closed'

c. Copan Hieroglyphic Stairway
ye-b'u-li 7u-mu[ku]-li "COPAN"**-7AJAW-wa**
y-ehb'-ul u+mu(u)k-ul(-il) "Copan"-7aajaaw
3A.SG-step-P6POSS 3A.SG-bury(ing)-P4POSS "Copan"-Lord

'the step/stairs/stairway of the burial of/for the "Copan" Lord'

4.7. Possession type 7 (P7): Suppletive, Set.A-CVC$_1$, CVC$_2$-Ø. Suppletive possession is characterized by noun roots in complementary distribution with regard to possession (see table 2 for examples and Online Appendix 2.7 for datasets from various subgroups): one of the roots cannot be possessed, and the other can only be possessed. Lehmann (2003:52) offers a strict definition: he requires that the nouns in such a relationship be both in complementary distribution and synonyms. With regard to the second criterion, he disqualifies Yucatec *nah* 'house' and *otoch* 'home', arguing them not to be synonyms. Nevertheless, because synonyms are not typically identical in meaning, much less contexts of use, the criteria for suppletion should be more realistic; for my purposes, complementary distribution, a semantic domain relationship, and a recognition by speakers that one root is the possessed equivalent of another unpossessed

[24] Mora-Marín (2007) proposed the decipherment of the **hu-7u-yi** expression, argued by that author to be the phonetic spelling substituting for the so-called GOD.N verb, as *hu7-uy-i-Ø* for 'it became sighed/finished', based on terms of the shapes *hub'~ hu7* and the metathesized form *7uh* present in the Greater Tzeltalan languages, especially Tzotzil, Tzeltal, and Ch'orti'.

root will suffice. Most of the examples of suppletion attested in Mayan originated not as synonyms but simply as terms belonging to the same semantic domain. While Lehmann (2003:52) may be correct that Yucatec Maya does not exhibit examples of suppletion, in the Mayan languages that do, the following are common domains where suppletion is represented: house/home, certain family terms, basic foods, clothing, and domestic animals. Only a few nouns exhibit this type of possession per language; so far no unambiguous examples have been reported for Huastecan.

Yucatecan, more broadly, *does* exhibit examples: both Lacandon and Mopan exhibit suppletion for the term for 'house'. In fact, this etymon, 'house', and its complementary etymon, 'home', make up the only suppletive pair that can be reconstructed to Late Proto-Mayan, based on descendants of Late Proto-Mayan **ŋaah* 'house', for the unpossessed member of the suppletive term and Proto-Mayan **7atyooty* (or **7atyuuty*) 'house/home', for the possesssed member, following Kaufman with Justeson (2003:947). Although Huastec has a reflex of Proto-Mayan **7atyooty*, it does not have one for **ŋaah*; and while it does have a term that is obligatorily possessed, meaning 'homestead, household', the Huastec reflex of Proto-Mayan **7atyooty* , *7ataa(j)*, has a narrower meaning, 'the house proper', which can occur both possessed and unpossessed (Edmonson 1988:1). A Late Proto-Mayan stage for this type of possession can be proposed.

There is a special case that must be reviewed: the ordinal form 'first'. Typically, Mayan languages possess cardinal numerals to derive them into ordinals. With the case of 'one' and 'first', however, a suppletive pair is commonly used: one root is used for 'one' and a different one for 'first', but this latter one is not possessed. Interestingly, in Huastec, the form for 'first' *can* be possessed; also, in Huastec, the form for 'one' can be possessed and derived into an ordinal in the same fashion as other numerals. But in the remaining subgroups, usually the suppletive form for 'first' is unpossessed. It is thus possible that this 'one'/'first' suppletive relationship can be traced back to Late Proto-Mayan (Proto-Mayan minus Huastecan). The problem lies in the fact that the specific etymon for the possessed part of this suppletive term is not clear. Yucatecan exhibits **ya7x*, whereas other languages exhibit either **nah* 'first' or **b'ah* 'first'. It would appear, based on the datasets in Kaufman with Justeson (2003:947), that **b'ah* is more common as a numeral 'first' outside of Yucatecan, so that perhaps a suppletive relationship between **juun* 'one' and **b'ah* 'first' can be proposed to Late Proto-Mayan. But again, this case differs because the ordinal form would probably not have been possessed explicitly.

In Greater Mamean, both Tektiteko and Awakateko (ISO 639-3 agu) exhibit suppletion in the term for 'coat', for example, Awakateko *xno'ql* 'chamarra (coat)' and *n-txo'* 'mi chamarra (my coat)' (Mendoza Solís 2007:35). At least two

Greater K'iche'an languages, K'ichee' and Kaqchikel, also show suppletion of their term for 'coat', for example, K'ichee' *k'uul* 'coat' and *nu-q'uu'* 'my coat' (López Ixcoy 1997:104). The terms involved are not obviously cognate between Greater Mamean and Greater K'iche'an. Perhaps Proto-Eastern Mayan exhibited a suppletive term for 'coat' as well, with at least one of the two branches subsequently replacing the relevant etyma completely.

4.8. Possession type 8: Diphrastic kennings, Set.A-CVC Set.A-CVC. This type of possession involves diphrastic kennings, commonly referred to as couplets (see table 2 for examples and also Online Appendix 2.8 for datasets). Each language uses them to convey concepts for which no single term exists.[25] The two most common semantic domains for co-lexicalized nouns of this sort are kinship terms and body parts, the same types of of nouns that typically participate in inalienable possession types: 'parents', 'grandparents', 'siblings', and 'body'. More abstract concepts are often expressed diphrastically as well: 'war' and 'fate'. Although these linguistic devices have been recognized in the verbal and written art of a variety of Mayan languages and, in fact, other Mesoamerican languages, they are not merely artistic means for expressing ideas: they are, on occasion, *the only linguistic means available* for expressing and possessing certain common concepts. Based on metaphor, metonymy, synecdoche, or duality, such cases may become "co-lexicalized nouns" (Romero-Méndez 2008:193–94); Mayanists have tended to refer to them as "compounds," although at least some have recognized that they are instances of "coordination rather than subordination" (Stross 1976:248). No examples are reported in the grammars of Huastec available to me. Although generally none are reported for contemporary Yucatecan languages in dictionaries and grammars, Colonial Yucatec attests to a few examples, such as *wah, ha* 'food and water; fate', *ch'en, actun* 'wells and springs; settlements', *che, tunich* 'sticks and stones; war' (Edmonson 1986:19; cited in Knowlton 2002:9). But examples from all the remaining subgroups are documented in available grammars; they are also documented in Classic Mayan inscriptions, as discussed by Knowlton (2002). I propose a Late Proto-Mayan antiquity for these constructions, pending future research on Huastecan. So far it has not been possible to document a specific diphrastic kenning to such an early stage.

4.9. Possession type 9: Never possessed, CVC-Ø. Certain types of noun roots are typically not possessable without a change in meaning (see table 2 for

[25] Polian (2017a:208) refers to these as "coordinate compounds," stating, "The two nominal stems of those compounds typically display a loose degree of fusion, as some affixes may intervene between them."

TABLE 15
NEVER-POSSESSED NOUNS ROOTS/STEMS

	Noun roots/stems	Subfamlies	CM	LpM	pM
Huastecan	ik' 'wind'				rainbow?
	ch'ojool 'herb, plant'				wind?
	thiniy 'scorpion'				
	thiiman 'witch'				
	aam 'spider'				
	jutxkan 'blister'				
	pich'al 'rainbow'				
Yucatecan	k'in 'sun'			sun	
	uj 'moon'			moon	
	ek' 'star'			sky	
	ka'an 'sky'			cloud	
	witz 'mountain'			wind	
	muyal 'cloud'			rain	
	ik' 'wind'				
	ja' 'rain'				
	kan 'snake'				
Greater	q'iij 'sun'	sun	sun		
Mamean	xjaaw 'moon'	star	star		
	che7w 'star/cold'	moon	moon		
	jb'aal 'rain'	cloud	cloud		
	muuj 'cloud'	rain	rain		
	kq'iq' 'air'	[rainbow]	rainbow		
	t-xmakl lab'aj 'rainbow'	[lake/ocean]	lake/		
	ek' 'chicken'	air	ocean		
Greater	q'iij 'sun'		air		
K'iche'an	ch'uumiil 'star'				
	kaaj 'sky'				
	jab' 'rain'				
	chooy 'lake'				
	suutz 'cloud'				
	aq'ab' 'night'				
	palow 'sea'				
Greater	tz'ayik 'sun'	sun			
Q'anjob'alan	satkan 'sky'	star			
	muk' 'smoke'	[moon]			
	tx'umel 'star'	cloud			
	weykan 'star'	[rain]			
	asun 'cloud'	[rainbow]			
	ŋab' 'rain'	[lake/ocean]			
	kaq'e' 'wind'	air			
Greater	k'in 'sun'				
Tzeltalan	utk'in 'sky'				
	tokar 'cloud'				
	makchan 'rainbow'				
	katu' 'cloud'				
	nab' 'ocean'				
	ch'äk 'flea'				

examples and Online Appendix 2.9 for datasets); generally, in such cases, the nouns are abstractivized by means of a *-*VVl* suffix. They may be possessed under very contrived circumstances or in ceremonial contexts, as described by Can Pixabaj (2007:73–74) for Uspantek (ISO 639-3 usp), or indirectly (in a "roundabout fashion"), in the Eastern Mayan languages at least, as described by López Ixcoy (1997:103) for K'ichee', by means of a kin term (e.g., 'father', 'mother', 'grandfather', 'grandmother') (see data in Online Appendix 2.9.4). Common domains include natural phenomena (sun, moon, cloud, lake, rainbow) and certain animals (snake), but these are not always the same across Mayan languages. Also, ordinal suppletives in most Mayan languages are not possessable, but as already noted in **4.7**, in Potosino Huastec possession of the suppletive for 'first' is optional. A few unpossessable etyma (or at the very least, unpossessable concepts) that are not part of suppletive pairs can be argued to date back to Late Proto-Mayan, as seen in table 15.

Meléndez Guadarram (2007:58) discusses unpossessable nouns in Classic Mayan inscriptions. She provides the noun *k'iin* as an an example but translates it as 'sol/día/fiesta', which is problematic because it is only the first gloss, 'sol (sun)', that is unpossessable, while 'día/day' and 'fiesta/party' are posessable. This noun, in fact, appears possessed in Mayan inscriptions, as **7u-K'IN-ni**, **7u-K'IN-ni-li**, **7u-K'IN-ni-le**, and **7u-K'IN-li**, all for *u+k'iin-i(i)l* (3sE-day-P6POSS) 'the day of'. Thus, this example constitutes an instance of the "resemantización por posesión" (shift in meaning due to possession) illustrated by Meléndez Guadarram (2007:112–13) herself for nouns like *7unen* 'child' > *y-unen* (3sE-child) 'his son'. This means that when typically unpossessable nouns are possessed, a different meaning, often more abstract, is adopted.

4.10. Possession type 10: Always possessed, Set.A-CVC(-VVl), ☹CVC-Ø. Always possessed nouns come in three common types (see examples in table 2 for examples and Online Appendix 2.10 for datasets): ordinal numerals, relational nouns, and abstract nouns. Smith-Stark (1976:55) hypothesized that Proto-Mayan had obligatorily possessed ordinal nouns, except perhaps for 'first', which he noted appears to exhibit a suppletive form. His proposal generally holds, as already discussed. Utilizing the typology of ordinal numerals by Stolz and Veselinova (2013), it can be said that most Mayan languages (minus Huastecan, Greater K'iche'an, and Ch'orti') are consistent with the "first, two-th, three-th" type, a pattern reconstructible to Late Proto-Mayan, but other options are attested: Huastecan exhibits the pattern "first/one-th, two-th, three-th"; Greater K'iche'an exhibits "first, two, three"; and Ch'orti' exhibits the pattern "first, second, three-th." Table 16 presents the evidence and reconstructions for ordinal numeral derivation. Generally, then, Mayan languages (Huastecan, Yucatecan, Greater Q'anjob'alan, and Greater Tzeltalan) derive ordinals by means of possession with both a third-person singular ergative proclitic and

TABLE 16
ORDINAL NUMERALS AND POSSESSION IN MAYAN LANGUAGE SUBGROUPS

	Constructions	Subfamilies	pM
Huastecan	(Set.A-)Num-*chiil*		*(Set.A-)
Yucatecan	Set.A-Num-CL ~ Num-CL-*il* (Yucatec)	*Set.A-Num-CL-*il*	Num-*VVl*
Greater Mamean		*Set.A-Num-Ø	
Greater K'iche'an	Set.A-Num-Ø		
Greater Q'anjob'alan	Set.A-Num-iil	*(Set.A-)Num-*Vl*	
Greater Tzeltalan	(Set.A-)Num=CL Set.A-Num=CL-(V)l-Vl Set.A-Num-al		

Parentheses indicate elements that are not obligatory in every context.

an abstractivizing suffix, a pattern reconstructable to Proto-Mayan. Some languages exhibit variation. In contemporary Yucatec, 'third' may be realized as either *óox=p'éel-il* or *u+y-óox=p'éel*: the former instance is unpossessed and requires the abstractivizing suffix *-il*, while the latter is possessed and prescinds of the abstractivizing suffix; both require a numerical classifier, for example, *=p'éel* 'default classifier for inanimate entities'. Potosino Huastec does not require obligatory possession of ordinal numerals, only the use of the suffix *-chiil*, as in *tsab-chiil* 'second'. In some contexts the Set A marker and the suffix *-chiil* are both used, for example, *ʔin tsab-chiil* 'second'. It also has an ordinal for 'first' based on 'one', that is, *hun-chiil* 'first', as well as a suppletive form *ʔok'ox* 'first', apparently from *ʔook'* 'head', used to mean 'primary/chief/oldest' (Edmonson 1988:419). Also worth noting, Potosino Huastec can possess the suppletive form for 'first', but the suffix *-chiil* is not needed, as, for example, with *ʔin ʔok'ox* 'first'; this is the same pattern in Yucatec Maya, but whether it applies to Proto-Yucatecan and, from there, possibly to Proto-Mayan remains to be determined. In other Mayan languages the suppletive form for 'first' typically remains unpossessed (Edmonson 1988:420).

Smith-Stark (1976:57) has also proposed the reconstruction of relational nouns, nouns that are typically used metaphorically to express locative or case relations, to Proto-Mayan. Kaufman (2015a:704–6) agrees and further reconstructs several specific Proto-Mayan relational nouns used to express oblique cases (demoted direct object, possessive, accompaniment, cause, demoted agent) or location that required possession by means of a Set A agreement marker. The evidence for this type of obligatorily possessed noun is shown in table 17. It is probable that Proto-Mayan used the preposition *$*t^{y}a$* with locative relational nouns (cf. *ty[a-]Set.A.-RN) but did not require it for case-coding relational nouns (cf. *Set.A.-RN), where RN stands for 'relational

TABLE 17
RELATIONAL NOUN CONSTRUCTIONS AND POSSESSION

Subfamilies	Construction	Mesolanguage Reconstruction	pM Reconstruction
Huastecan	*t*-Set.A-RN	*t-SET-A-RN	*ty[a-]Set.A.-RN
Yucatecan	*t*-Set.A-RN	**t*-Set.A-RN	*Set.A-RN
	Set.A-RN	*Set.A-RN	
Greater Mamean	Set.A-RN	*chi-Set.A-RN	
Greater K'iche'an	*chi/pa* Set.A-RN	*Set.A-RN	
	Set.A-RN		
Greater Q'anjob'alan	Set.A-RN	**t*-Set.A-RN	
Greater Tzeltalan	*t*-Set.A-RN	*Set.A-RN	
	Set.A-RN		

noun'. It is possible that Greater Mamean and Greater Q'anjob'alan innovated the use of the Set.A-RN template for both locative and relational uses, either independently or as a result of contact diffusion; this is an issue that should be resolvable with a bit more research.[26]

Table 18 lists the evidence for obligatory possession of abstract nouns. It would seem that in Proto-Mayan derived abstract nouns were *optionally* possessed. At this point it would seem too that Greater K'iche'an innovated the obligatory possession of this type of noun, although as Dayley (1985:151–52) and other authors have observed, abstract nouns may be unpossessed in some contexts, especially, Dayley notes, when the noun can be generic and a speaker is referring to a generic category, as in Tz'utujiil *naq chi chee7-aal?* for 'What type of tree (is it)?, where *naq* is 'what', *chi* is 'generic preposition', and *chee7-aal* is 'tree-ness'.

Lastly, Table 19 presents evidence for obligatory possession of common nouns such as parts of the body, kinship terms, and abstract nouns ('money', 'price', 'permission', 'shame'). Only Eastern Mayan languages, based on present evidence, would allow for the reconstruction of specific etyma. Also, the

[26] The only new finding regarding relational nouns that is worth mentioning here is the possible relationship between Yucatec *y-óok'ol* 'over, on top of' and Huastec *ʔook'* 'head', *ʔu ʔook'* 'my head', used as a relational (locative) noun, as in *ʔin ʔok'ool* 'its roof (of the house)' (Edmonson 1988:373). Another possible instance of diffusion between Yucatecan and Huastecan involves Yucatecan *ʔoot'* and Huastecan *ʔoot'~ ʔot'-ool*, both 'cuero, piel, pellejo' (Kaufman with Justeson 2003:375). If proven correct, these would likely be instances of diffusion, not unlike the case of Yucatec *pèek'* 'dog' and Huastec *pik'oʔ* (*ʔu piik^{w}'-al* 'my dog') (Edmonson 1988:370), both in turn borrowed from Zapotec **peʔkku* and ultimately from Mije-Sokean **ʔuku* (Kaufman with Justeson 2003:574).

TABLE 18
DISTRIBUTION AND RECONSTRUCTION OF ABSTRACT NOUNS POSSESSION CONSTRUCTIONS

Subfamilies	Attested Constructions	Mesolanguage Reconstruction	pM Reconstruction
Huastecan	(Set.A-)Abstr.N-neel/-talaab/-eenib	*(Set.A-)Abstr.N-ABSTR	*(Set.A-)Abstr.N-VVl
Yucatecan	(Set.A-)Abstr.N-Vl	*(Set.A-)Abstr.N-VVl	
Greater Mamean	(Set.A-)Abstr.N-al/-ab'iil/-Vl	*(Set.A-)Abstr.N-VVl	
Greater K'iche'an	Set.A-Abstr.N-VVl		
Greater Q'anjob'alan	(Set.A-)Abstr.N-VVl	*(Set.A-)Abstr.N-VVl	
Greater Tzeltalan	(Set.A-)Abstr.N-Vl		

TABLE 19
ALWAYS-POSSESSED NOUNS

	Nouns	EM	LpM	pM
Huastecan	-k'imaaʔ 'homestead'			
Yucatecan	-chi' 'mouth'(?)			
Greater Mamean	-lok' 'root'	*peel		
	-xaaq 'leaf'	*leaf		
	-xk'owil 'peel'	*tongue		
	-xk'oom 'peel'			
	-b'aq' 'seed'			
	-aaq' 'tongue'			
Greater K'iche'an	-iij 'peel'			
	-ajil 'money'			
	-xaaq 'leaf'			
	-aa' 'leg'			
	-aaq' 'tongue'			
Greater Q'anjob'alan	-ajaw 'boss, lord, authority'			
	-al 'broth, juice, sweat'			
Greater Tzeltalan	-tak'in(-il) 'price'			

reliability of some of the data is not entirely clear (e.g., some of these may constitute members of suppletive terms that have not been explicitly described as such), and further documentation would be preferred.

4.11. Summary. Table 20 summarizes the reconstructions proposed to Proto-Mayan and Late Proto-Mayan. P4 possession, marked with

TABLE 20
(LATE) PROTO-MAYAN POSSESSION TYPOLOGY (*SET.A- INDICATES THE POSSESSED FORM)

Type	Morphological templates	Descriptive labels	Semantics
P1a	*Set.A-CVC, *CVC	Simple ownership, alienable	Cultural items (cultigens, tools)
P1b	*Set.A-CVC, *CVC	(Semi-)inalienable possession (typically but not always possessed)	Body parts, kin terms
P2	*Set.A-C**VV**C ~ *CVC *Set.A-CVC**VV**C ~ *CVCVC *Set.A-C**VV**C**VV**C ~ *CVCVC	Vowel-lengthening alienable possession	Cultural items (food, cultigens, domesticated animals)
P3	*Set.A-CVC, *CVC-**Vk** ~ *CVC-**(V)b'** ~ *CVC-**Vts**	Suffix-removing inalienable possession	Kin terms, body parts, clothing
P4	—	"Dative" abstractive possession	Objects produced by/for or closely associated with an individual or entity; benefactive, malefactive, recipient, goal roles
P5	*Set.A-CVC-**aal**, *CVC-**Ø**; ***-aal** 'abstractivizer'	Systemic or extension abstractive possession	Parts of an organism of system-wide distribution and/or involuntary control; includes noncorporeal substances applied to the body (dirt, water, paint)
P6	*Set.A-CVC-**iil/-aal**, *CVC-**Ø**; ***-iil ~ *-aal** 'abstractivizer'	Inanimate, part-whole, or dative abstractive possession	Parts of objects (possessee is not typical meronym), inanimate or collective possessors only
P7	*Set.A-[**CVC**]$_1$, *[CVC]$_2$ (*Set.A-7atyooty, *ŋaah)	Suppletive roots/stems	House/home, food, animal, clothes, parts of the body
P8	*Set.A-[CVC]$_1$ *Set.A-[CVC]$_2$	Diphrastic kenning construction	Parents, grandparents, deities (metonyms; some are metaphorical too)
P9	*CVC-**Ø** (Sun, Moon, Sky, Cloud, Wind, Rain)	Never possessed (or possessed indirectly) (not a member of suppletive pairs); possession possible with derivation of a different meaning only	Natural phenomena (sun, star, cloud)
P10	*(tya+)Set.A-CVC(-**VVl**), *Set.A-CVC(-**VVl**)	Always possessed (not a member of suppletive pairs), abstractive possession	Relational nouns (locative, temporal, case), abstract nouns, ordinal numerals

*-*il* or *-*iil* ‘abstractivizer’, is argued to be a Greater Lowland Mayan innovation.

5. Related Issues.

5.1. Possession and Mayan vowel correspondences. In **4.2** I discussed the case of nouns that undergo vowel-lengthening upon possession. There it was noted that it is difficult to reconstruct etyma that underwent this process to the higher orders of the classification. Two roots are reconstructible to early stages exhibiting P2 possession, but neither to Proto-Mayan: **xaq* ~ **ERG-xaaq* for ‘leaf’ (Central Mayan or Proto-Eastern Mayan), already noted by Kaufman with Justeson (2003:1045); and also, I argue here, **laq* ~ **ERG-laaq* ‘clay cup/dish’, reconstructible to Late Proto-Mayan, based on evidence from Yucatecan (e.g., Yucatec *lak* ‘clay cup’ and *in+làak* ‘my clay cup’) and Greater Mamean (e.g., Tektiteko *laq* ‘cup’ and *n-laaq* ‘my clay cup’). The latter root is reconstructible as Proto-Mayan **laq* (Kaufman with Justeson 2003:986), being attested in Potosino Huastec as *laak*; however, in Huastec it is *laak* both in unpossessed and possessed forms, and when possessed it takes the suffix *-il* (Edmonson 1988:352). This example may illustrate one of the major issues in the phonological reconstruction of Proto-Mayan. The alternations resulting from P2 possession could have given rise, in some languages, to reanalysis, with different outcomes in different languages, resulting in irregular correspondences of the same vowel. It is entirely plausible that Proto-Mayan in fact exhibited an alternation between **laq* and **ERG-laaq* but that Huastecan extended the possessed form to the unpossessed context, too, leveling it as *laak*.

In response to Brown and Wichmann’s (2004) and Wichmann and Brown’s (2011) review of Mayan vowel correspondences, Kaufman has argued that some of the irregular correspondences that those authors have isolated could be the result of the reanalysis of nouns that experience vowel lengthening when possessed. Brown and Wichmann (2004:16162) dismiss the suggestion, stating that his “explanation would be compelling if all referents in question [e.g., ‘snake’, ‘avocado’, ‘sweet potato’, ‘breast’, and a few others] were canonically possessed, but this can only be safely argued for ‘breast.’” The problem with their assessment is that roots that exhibit P2 possession are precisely *not* obligatorily/typically/inalienably possessed roots (P1b, P3, P10 strategies) but quite alienable ones. And of the roots that those authors cite as not likely to be *canonically* possessed, the only one that I would agree to be *very unlikely* to be possessed is ‘snake’. In fact, cultigens (‘avocado’, ‘sweet potato’) belong to the class of roots that do occasionally exhibit P2 possession (e.g., K’ichee’ *kinaq’* ‘bean’, *u-kinaaq’* ‘his/her bean’; Uspantek *jal* ‘mazorca (maize ear)’, *in-jaal* ‘mi mazorca (my maize ear)’; Mocho’ *pix* ‘tomato’, *x-piix-aal* ‘his tomato’ and *ik’* ‘chile’, *ch-iik’=-aal* ‘her chile’).

5.2. Possession and abstractivization. Inflection and derivation can be difficult to differentiate.[27] I have argued that P4/P5/P6 possession types are all the result of abstractivization by means of *-*VVl* suffixes; also, some subtypes of P10 exhibit abstractivization (e.g., ordinals, abstract nouns, some relational nouns). In Potosino Huastec, especially, abstractivization has been extended even to P1 possession.

It seems clear from the Yucatec data provided in (16)–(17) that speakers utilize the *-el* (or *-il*) 'abstractivizer' of nouns, whether these refer to parts of the body or not, in order to express a relationship between parts and a whole of a systematic or extensive nature, unlike a simpler example of a part-whole relationship such as the 'head' or 'arm' or 'face' of something. As already noted in **3.4.2**, Dayley (1985:145–46), Nichols (1988:575), and Heine (1997:180) have discussed this "abnormal possession," Dayley's term, as an instance of the category of inalienable possession, almost invariably an unmarked category cross-linguistically, appearing to be marked in Mayan languages only. All three authors have entertained the possibility that this type of possession could be instead the result of derivation. If so, then it would cease to constitute a typological exception. I agree with this assessment. More recently, both England (2017) and Hofling (2017) have adopted this stance as well. P5 possession can be shown to be based on abstractivizers diachronically and, in a few languages at least (e.g., Tz'utujiil), also synchronically. And this applies to P4 and P6 possession (and some types of P10).[28]

Interestingly, the Tetelcingo Nahuatl (ISO 639-3 nhg) and Veracruz Nahuatl (ISO 639-3 nlv) varieties exhibit a suffix *-yo* that similarly blurs the distinction between inflection and derivation. Wolgemuth (2002:58–60) describes a nominal suffix *-yo* in Veracruz Nahuatl, which he defines as a "suffix of intrinsic possession." It is applied with a variety of meanings or functions, including the following, as defined by Wolgemuth:

(20) Veracruz Nahuatl (Wolgemuth 2002:58–60)
a. As part of the body

[27] Common examples of the gray area between inflection and derivation include morphological markers that increase (applicatives, causatives, transitivizers) or decrease (intransitivizers, passivizers, antipassivizers) verbal valency or those that may derive verbs from a variety of roots, such as nouns, adjectives, transitives, and intransitives (e.g., inchoatives, versives).

[28] What this means is that abstractivization in Mayan languages illustrates what can only be regarded as an example of the *genius* of a language (Sapir 1921:60), *florescence* (Chafe 1999), or *capitalization* (Pountain 2000). Abstractivization is thus highlighted as a crucial process in the grammar of Mayan languages, a part of their genius, one that speakers have exploited over the millennia to create new grammatical and semantic distinctions or to rejuvenate old grammatical distinctions, particularly in the context of attributive possession.

i. *naca'* 'carne (flesh)' vs. *no-naca* 'mi carne (ajena a mi cuerpo) (my flesh/meat [not part of my body])' vs. *no-naca-yo* 'mi carne (parte de mi cuerpo) (my flesh [part of my body])'
ii. *omi'* 'hueso (bone)' vs. *no-omi* 'mi hueso (ajeno a mi cuerpo) (my bone [not part of my body])' vs. *no-omi-yo* 'mi hueso (parte de mi cuerpo) (my bone [part of my body])'

b. As integral part of an object: *cuahui'* 'madera, palo (wood, stick)' vs. *i-cua* 'su madera (posesión de una persona) (his/her wood [possessed by a person])' vs. *i-cua-yo* 'su mango (la parte de la herramienta hecha de madera) (its handle [part of a tool made of wood])'
c. As a product: *nexti* 'cal, ceniza (lime, ash)' vs. *i-nex* 'su cal (posesión de una persona) (his/her lime [possessed by a person])' vs. *i-nex-yo* 'su ceniza (producto de algo como caracol quemado) (its ash [product of something like a burnt snail])'
d. As identity: *¿Té i-xo̲chi-yo in?* '¿Qué tipo de flor es ésta? (What type of flower is that?)'
e. Other uses
i. *soqui'* 'lodo (mud)' vs. *i-soqui-yo* 'su mugre (algo que cubre el cuerpo) (its dirt [something that covers the body])'
ii. *a̲'ti* 'agua (water)' vs. *iy-a̲-yo* 'su resina (de la planta), su jugo (de la fruta) (its sap [of the plant], its juice [of the fruit])'
iii. *xe̲to'* 'un tonto (a dumb person)' vs. *i-xe̲toc-yo* 'su tontería (his/her dumbness)'

Wolgemuth (2002:58) explains that this suffix cannot be used with just any body part term (e.g., 'head', 'arm', etc.), only with those that can be potentially owned as detached objects. This suffix functions derivationally in several of the above examples. It appears to match the various uses of the Mayan **-VVl* abstractivizers described above, particularly those utilized for P5 possession, as in (20a), (20e-i), and (20e-ii), but also P6 possession, as in (20b). Some P3 posession markers in Mayan languages, as well as P5 possession markers, may be used also in a manner akin to that seen in (30d). This supports my contention that P5 possession and P6 possession are in fact examples of abstractivization rather than an inflectional process.

5.3. A broader perspective? Campbell, Kaufman, and Smith-Stark (1986: 549) defined Mesoamerica as a linguistic area. In their work, they referred to "intimate possession" as a feature common in Mesoamerican languages but not necessarily diagnostic of the region as a linguistic area, given its wide distribution throughout the Americas. Nevertheless, specific aspects of attributive possession morphology could be indicative of areal spread. For instance, in addition to Mayan, alienable versus inalienable (or noninherent versus

inherent, nonobligatory versus obligatory) possession splits are documented in Otomanguean (Hollenbach 1992:339; Rasch 2002:65: Sonnenschein 2004:63–66) and Totonacan (Beck 2004:8; Kung 2007:361; MacFarland 2009:79–80), among others, typically with body part and kinship terms. Also, unpossession ("absolute" or "absolutive") marking occurs in Totonacan, as with the "impersonal" possession prefix *xa-* in Upper Necaxa Totonac (ISO 639-3 tku) (Beck 2004:14) or *xaa-* in Huehuetla Tepehua (ISO 639-3 tee) (Kung 2007:357), and is well-known for Nawan. Suppletion of nouns under possession occurs in Otomanguean (e.g., Hollenbach 1992:339; Sonnenschein 2004:150) and to a much more limited extent in Totonacan (Kung 2007:361). Like Mayan, some Mixe-Zoquean languages exhibit "co-lexicalized nouns" (P8 possession): Romero-Méndez (2008:193–94) provides examples from Ayutla Mixe (ISO 639-3 mxp) such as *tyeety tyääk (y-teety y-täak)* (3POSS-father 3POSS-mother) 'parents', *m-ween m-ää* (2POSS-eye 2POSS-mouth) 'your face', *yë'ë y-jëën y-tëjk* (DEM.M 3POSS-fire 3POSS-house) 'his home', and *yë'ë kaaky to'kx* (DEM.M tortilla meal) 'the food'. And last, several Otomanguean languages exhibit a class of unpossessable nouns (Farris 1992:129; Hollenbach 1992:338; Sonnenschein 2004:134). Of the major language families, Totonacan, Otomanguean, and Mayan seem to share the most traits, while Mixe-Zoquean languages typically lack them or exhibit a more limited distribution.[29] Some of the shared patterns, especially between Mayan and Otomanguean languages, both of them exhibiting complex "possession classifications" à la Nichols and Bickel (2013), are suggestive of a historical connection, most likely one of prolonged contact. Other similarities could be the result of common, cross-linguistic/cultural/cognitive tendencies (e.g., suppletion of house/home forms, unpossessability of nouns for certain natural phenomena, inalienability of kin terms and parts of the body due to frequency of possession in discourse, etc.). Thus, a next step will consist of exploring such similarities in more detail, to attempt to distinguish between historical connection and independent development.

6. Conclusions. Of the ten types and subtypes of attributive possession constructions defined, nine are reconstructible to Late Proto-Mayan or Proto-Mayan and one is suggested to have been innovated in the Greater Lowland

[29] Although some Mixe-Zoquean languages appear to lack possession classification systems, i.e., distinctions between alienable and inalienable nouns, a different process may be sensitive to the semantics of nouns that are often inalienable in other languages: external possession constructions. In his analysis of Olutec, Zavala (2000:550–51) states that "only a restricted set of nouns can appear in EPC's [External Possession Constructions]," particularly body parts, bodily secretions, parts of wholes, and kin terms. That said, some Mixe-Zoquean languages do exhibit alienable versus inalienable distinctions marked through obligatory possession of the latter (depending on the semantics of the possessor), e.g., Sierra Popoluca (Gulf Zoquean), according to Boudreault (2009:152–53).

Mayan contact area. These results have confirmed, in some cases refined, and in a few instances revised the findings by previous scholars on the diachronic development of certain types of possession morphology in Mayan languages (Smith-Stark 1976; Houston, Robertson, and Stuart 2001; Kaufman 2015a); they have also proposed new reconstructions and a direct relationship between the *-*VVl* suffixes used in possession constructions (P4, P5, P6, and some P10) and *-*VVl* abstractivizers.

This paper has also fleshed out some of the problems and gaps that arise in this particular area of Mayan grammar, which can only be resolved with targeted documentation, facilitated by comparative approaches like the one carried out here. Thus, the comparative survey presented in this paper should inspire linguists to systematically check for cases of possessed and unpossessed abstract nouns, for variation in the expression of ordinal numerals, or for the possibility of documenting additional examples of suppletive nouns and diphrastic possession. The goal, already illustrated by scholars like Kaufman (2015a) and England (1988, 1992), should be one of standardization of grammatical categories and processes through cross-linguistic comparison. The paper also discussed the notion of possession classifications by Nichols and Bickel (2013), which has allowed for the distinction between possessee- and possessor-constrained strategies, both of which are responsible for the variety of attributive possession constructions in Mayan languages.

Finally, the present research offers a new avenue for testing the hypothesis of Mesoamerica as a linguistic area (Campbell, Kaufman, and Smith-Stark 1986); my next objective will consist of a detailed analysis of possessive morphological traits in the region in order to ascertain the likelihood of historical connections between languages and language families, as well as the reliability of such traits in measuring the strength of Mesoamerica as a linguistic area.

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